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The Beattie-Smith Lectures.[1]

(UNIVERSITY OF MELBOURNE.)

LECTURE I: PSYCHIATRY, THE STATE, AND THE INDIVIDUAL.

By BARRY MULVANY,

Psychiatrist, Saint Vincent's Hospital; Consultant, Royal Australian Air Force and Repatriation Commission, Melbourne.

Truth is what stands the test of experience.

—ALBERT EINSTEIN, Princeton, New Jersey, 1951.

BEATTIE-SMITH endowed these lectures because he thought "the Practitioner and the Public are in need of much education in regard to this subject". In recent years both practitioners and public have absorbed much information on the subject of insanity and its treatment, but its uncritical acceptance is inconsistent with Beattie-Smith's purpose. The term insanity is legal and utilitarian, emphasizing reasons for committal and confinement, and pays no attention to the medical aspects of major mental disorders. The insane form a large and important group within the branch of medicine now known as psychiatry.

Misconceptions about the scope and meaning of psychiatry are widespread. People talk of psychiatry without ever scanning the official classification of disorders comprising it. Its field extends beyond the care of the insane and mentally defective to the numerous mental and nervous disorders widespread in the community. Half the hospital beds in Victoria are psychiatric beds and a large proportion of ordinary medical practice consists of psychiatric problems. The scope and magnitude of psychiatric problems overshadow medicine and surgery throughout the civilized world. In recent years mental illness accounted for 52·5% of all illness among undergraduates at the University of Oxford, and the suicide rate was twelve times higher than among the ordinary population.

An absolute increase in psychiatric disorders has not been demonstrated with certainty, although increasing complexity of living might contribute to it. An immense factor is the increased interest of the State in the individual, for its own doubtful purposes. Twenty-five years ago those ill with mental or nervous disorders were not quite so clearly defined against the background of poverty and unemployment. It is customary to gloss over the appalling social conditions which prevailed until the outbreak of the second World War, the neglect of the insane being one aspect. Yet to be sane invited other hazards. Until 1938 one-third of all people born in the County of London died in the workhouse. For reasons of delicacy the London authorities did not publish this annual figure after 1930, but, according to Robert Sinclair, spread it under nicer headings. However, two world wars have taught the State that every citizen counts in the struggle for survival, so that today the charwoman with melancholia and the artisan with occupational neurosis are not only heard of, but are treated.

[1] Delivered at Melbourne on May 5 and 12, 1952.

The term psychiatrist has given rise to much misunderstanding. As with many words in current use, its meaning is not to be found in its roots. He is not "a physician of the soul". Novels, plays such as Mr. T. S. Elliot's "Cocktail Party", and films have popularized this notion. As a matter of fact, the greater proportion of the whole field of psychiatry is occupied by organic disease of a degenerative or congenital type. In the general practice of psychiatry acute organic psychoses representing atypical modes of presentation of well-known general medical disorders are not uncommon. It is astonishing how practitioners, nurses and expensive hospitals recoil from such cases, exemplified by cardio-vascular diseases complicated by mental symptoms. A shudder runs through the hospital and the patient is tied to the bed, his confusional fears being thus intensified. Last year forty patients died at Royal Park with general medical conditions a few days after their admission, and about 18 of these were found to have pneumonia at autopsy. No hospital of any consequence should be without special rooms for the "staging" of patients with psychotic symptoms so that there is continuity in their medical and surgical management. A complicating psychosis may have a better prognosis than pulmonary complications. The design of modern hospitals makes provision for all kinds of medical and surgical emergencies except those involving our most important organ, the brain. Hospital architects seem bent on killing a confused patient.

Then another large portion of the field of psychiatry comprises the psychoneuroses resting on a primary psychogenesis, and blending with most disorders in medicine and surgery. It is unwise to talk of psychiatry unless one is conversant with its scope. One portion deals with mental symptoms produced by organic changes and another with physical symptoms produced by psychological causes, and in the third the proportion of physical and psychological causes is still debated. The disorders which comprise psychiatry are better defined than is ordinarily thought. The demarcation of psychiatric disorders from the multitude of other human problems is exemplified well in gaol populations. Only about 15% of criminals have well-defined psychiatric conditions. Criminology involves psychological, social and moral problems outside the sphere of psychiatry.

Expansionist tendencies in psychiatry divert attention from its well-defined clinical problems. At the head of the World Health Organization is a Canadian psychiatrist, Dr. Brock Chisholm, who commends its definition of health as a "state of complete physical, mental and social well-being". No psychiatrist has a recipe for happiness, and one hopes that in Brock Chisholm's Utopia the punishment for sadness will not be too severe. Those acquainted with the superficial eclecticism of the psychiatric administrator know of campaigns to end international tensions, crime and poverty and all manner of human sorrows. While 700,000 patients languished in the mental hospitals of the United States of America in 1948, I read that Brock Chisholm gave an address at Washington with the modest title "The Psychiatry of Enduring Peace and Social Progress". Trespass on neighbouring disciplines provokes much of the misunderstanding about psychiatry and hinders its union with the general body of medicine and surgery.

Uncertainty about the scope of psychiatry has given rise to the notion that it is intimately connected with religion. Religion has no greater application to psychiatry than it has to surgery or the stock exchange, and has a greater application to those who should treat and nurse than to the unfortunate patients themselves. One's philosophy or religion should permeate all activities, but the special application which is sometimes made of religion to psychiatry is based on false notions of causation. Well-meant books and lectures on religion and psychiatry ignore ever-present genetic factors and stresses sustained in the first five years of life. Neurotic suffering can be heroic suffering, and one does not necessarily require a war to exemplify this. However, criticism of the evangelist who invades the demesne of psychiatry must be tempered by the fact that psychiatrists sometimes attract a person with philosophical or situational problems, who should be sent elsewhere and not made into an "interesting case".

What has been said about religion applies to the role of morale in service psychiatry. Poor morale in a fighting service increases incapacitation from any medical or surgical conditions and will produce a crop of situational neuroses. But this emphasis on the role of the morale obscures the more serious aspects of service psychiatry—that is, the question of constitution and relevant external stresses. It is my opinion that many lives and much equipment were lost in the second World War because of the notion that "good types" need not be sent to the psychiatrist. Hence thousands were referred because of superficial situational neuroses born of poor morale, while skilled and better endowed personnel were too proud to report their symptoms. In older forms of warfare this would be true courage; but modern warfare introduces the problem of the sustained performance of skilled action under stress. Hence one wonders how many aircraft were lost because pilot or navigator discounted the rising tide of fatigue and morbid anxiety. Skilled warfare introduces psychiatric considerations infinitely more complex than that of the bayonet charge. Selection, supervision and prevention form the essence of service psychiatry, the knowledge of the industrial psychologist being indispensable.

It is doubtful whether histories of psychiatry or of medicine are entitled to be called history. Most histories of psychiatry pay tribute to the Greeks, disparage the Middle Ages, glow at the Renaissance, bow towards Pinel and Tuke, and fall in final adoration before Freud. Has such history any significance when separated from its setting in great social, political and geographical currents? In *The London Observer* in 1945 Bernard Shaw called Guthrie's "History of Medicine" a compendium of facts but not history. This remark is an apt description of Zilboorg's "History of Medical Psychology", in which thousands of years of history are fashioned into a pedestal for Freud. Last year Professor Aubrey Lewis took Zilboorg to task for his depreciation of Henry Maudsley, whom Lewis ranks with Kraepelin.

As early as 1870 Maudsley observed that the induction of a general convulsion might induce a remission in some cases of acute insanity. In recent years there has been much speculation about causation in the schizophrenic and affective psychoses, while a third group, that of the psychoses associated with epilepsy, has been neglected. Intrepid psychopathologists such as Glover and Fenichel propose psychoanalytic theories for epilepsy, Glover making the fantastic statement that "the relation of both minor and major attacks to infantile genital interest is not hard to surmise". The group of psychoses associated with epilepsy is just as mysterious as the schizophrenic and affective groups, though less common. A century ago medical thinking on epilepsy was biased by mental hospital cases, but in recent times neurological progress has extended our conception of this disorder and modern treatment enables many epileptics to lead useful lives. Furthermore, there is every grade of severity, from the patient who has several fits in a lifetime to the patient committed to hospital with an associated psychosis. The actual type of psychosis varies widely, and many features discernible in the schizophrenic or affective groups of psychoses may develop in association with epilepsy. In the interparoxysmal period the patient may be depressed, elated with a manic type of excitement, paranoid and hallucinated. The acute psychotic phase of mental hospital epileptics may last for weeks, to end abruptly in a fit followed by pronounced but temporary improvement in their mental state. It is impossible not to be impressed by the similar temporary relief in other psychoses induced by the artificially produced convulsion. A young catatonic schizophrenic who regularly had convulsions on the mild hypoglycæmia induced by 40 units of insulin was perfectly lucid for an hour afterwards, but lapsed into his psychotic stupor afterwards. All psychiatrists can relate astonishing results with electroconvulsive therapy; but any method of inducing the convulsion may induce the remission, and it is this and not the method which is the common denominator. Furthermore, electroconvulsive therapy will terminate prolonged psychotic symptoms in an epileptic, as will the naturally occurring convulsion, or it will abort impending psychomotor

equivalents. It cannot be emphasized sufficiently that the main problem of epilepsy is not the problem of the actual convulsion. Much of the experimental work on epilepsy is useless, because a multitude of precipitants can be used to produce a classical fit without reproducing the natural brain conditions which lead to the fit in idiopathic epilepsy.

The actual convulsion may be "a brutal discharge" in the Hughlings Jackson sense, but it may also be a corrective mechanism for disordered brain metabolism. Thus the onset of mental symptoms in an epileptic makes the fits harder to control. It seems sometimes as if the correcting mechanism is fighting a losing battle with the progressing psychotic symptoms. Unless experimental work reproduces the spontaneously occurring natural conditions its value is doubtful, and this criticism applies also to the schizophrenias. Although anticonvulsants allow epileptics to lead more normal lives, they have also succeeded in cloaking the underlying problem. Phenurone, an anti-epileptic drug added to the list by Gibbs, Everett and Richards, not only controls major and minor seizures, but can turn psychomotor seizures into a major psychosis. The epilepsies as a group shade off through various mental disturbances and migrainous equivalents, forming a varied clinical picture, as do the schizophrenias. In a true epileptic the classical fit may be rare or replaced by other phenomena. Apart from replacing phenomena, other psychotic features, either pre-ictal or post-ictal, may occur, and there is hardly a feature of the manic-depressive or schizophrenic group which does not occur transiently in the epilepsies, from minor symptoms such as feelings of unreality through depersonalization to vivid continuous auditory hallucinations. The main difference between the epilepsies and the other two groups is duration. Yet episodic schizophrenia does occur, and epileptic twilight states may go on for weeks. Humoral mechanisms and the electroencephalogram cast shadows of possible causes; but the true cause is as unknown as that of schizophrenia. There is no discernible structural abnormality, genetic factors are important, and the overall picture of the epilepsies provides research problems identical with the psychoses of the affective and schizophrenic groups, including the same argument as to how frequently mental deterioration occurs. Curiously enough, some figures show a similar expectation for both schizophrenia and epilepsy in uniovular twins.

Denis Williams emphasizes the constitutional factor in epilepsy regardless of the irritant, and one of his most interesting observations following a brain injury is that the abnormal electroencephalographic changes are found symmetrically in both hemispheres at points remote from the site of injury, and in many no focal initiation could be found at the site of injury. Furthermore, an interval of time must elapse before these distant symmetrical discharges occur. Something has happened to the whole brain, which should make people like Zilboorg, who talk of "brain mythology", cautious. The biochemist and the pharmacologist are badly needed in the field of mental diseases, for in unravelling the disordered metabolism underlying epilepsy they might traverse the schizophrenias and the affective disorders. Some hospital admission figures for these three groups of psychoses suggest some degree of constancy. I have wondered whether in a fairly uniform sample of any population over a period of five or ten years there may not be some relationship between the incidence of these three groups. Curiously enough, the figures furnished by Carothers for Kenya Africans and American Negroes show that these three groups contribute almost identical percentages to admission rates in both Africa and America. The exact figures are as shown in Table I. The examination of this ratio in the Australian States has been a matter of great difficulty, because accurate figures have not been kept. I thought that two five-year periods might be helpful—1930-1934 and 1935-1939—because of the absence of any great social change, such as war or large-scale migration. The figures supplied to me by the Mental Hygiene Authority on a basis of the average rate per 100,000 of population show an almost identical ratio for the three groups in first admissions to hospital for the two five-year periods. Other States could not supply figures as far back as 1930, and consequently gave periods extending past 1941. I gave these to Dr. A. W. Meadows, psychologist of the new Mental Hygiene Authority, because the scientific psychologist is invaluable in the matter of giving objective and statistical definition to the clinical observations of the psychiatrist. Like myself, he was pressed with the constancy of the ratio between the schizophrenias, the affective psychoses and the psychoses with epilepsy which occurred over various years. Towards 1937 and particularly 1938 the ratio in all States was upset by such factors as the introduction of convulsive and insulin

TABLE I.
Hospital Admission Proportions.

Condition.	Kenya Africans.	American Negroes.
Epilepsy	3·6%	3·1%
Schizophrenia	28·7%	27·3%
Affective psychoses (manic - depressive states *plus* involutional melancholia) ..	8·5%	8·7%

forms of therapy, and a tendency, expressed in letters received from some of the directors, for some observers to juggle the "arty-crafty" term "schizophrenia". The first blast of interest in schizophrenia reached these countries in those years. The constancy in the preceding years is quite marked. With the qualifications mentioned we found that in the admission ratios to the Bundoora Repatriation Mental Hospital similar constancy prevailed. In the next lecture I shall discuss the disadvantages of regarding the schizophrenias and affective groups as mutually exclusive categories. The figures supplied by the Mental Hygiene Authority in Victoria on a basis of the average rate per 100,000 of population show an almost identical ratio for the three groups in first admissions to hospital for the two five-year periods, the figures supplied being as shown in Table II.

TABLE II.

Period.	Schizophrenia.	Affective Psychoses.	Psychoses with Epilepsy.
1930 to 1934	7·7	3·8	1·9
1935 to 1939	8·1	4·0	2·0

One fact emerges from this inquiry, and that is the need for notification of all major psychotic reactions, comparable with the notification obligatory in infectious diseases. In a particular sense this will be mentioned in the next lecture. Not only would such a scheme of notifications be of importance in research, but the nation would be saved much expense and trouble in the event of mobilization, and in forensic psychiatric problems, in which past psychotic episodes are of vast importance in testimony. The public must be taught that such notification has nothing to do with the legal process of certification. At present in Australia we have only an approximate idea of the incidence of the disorders we wish to study, and in the affective disorders and the schizophrenias our knowledge is biased by mental hospital material, as was our knowlodge of the epilepsies fifty years ago.

Snippets of history and philosophy often preface medical writings or garnish the scientific aspects of the medical course. In his "Psychiatry for Students and Nurses", H. C. Beccle exemplifies this by the following statement:

> During the Middle Ages the crudities of medicine and medical men extended to insanity. The times were those of religious wars, superstition, gullibility and ignorance. Madness was regarded with horror and mad people were subjected to exorcisms and every kind of ingenious barbarity. At length it occurred to the humanitarians of the eighteenth century that perhaps the insane were sick people and might be treated on medical principles. . . .

Some schoolboys know that the Middle Ages extended from the eleventh to the fifteenth century and reached a pinnacle in the thirteenth century, and that the period is sometimes extended back to the seventh century, when the West emerged from the barbarian invasions which marked the end of the Roman Empire in an upheaval which most historians refer to as the Dark Ages, and that the sixteenth and seventeenth centuries saw the so-called religious wars. Perhaps something more than Wilson Hall's Gothic beauty is needed to remind our medical essayists that the Middle Ages were not dark. The thirteenth century was famous for much more than Gothic architecture and the signing of the Magna Charta. The English common law took form and Bracton's "Digest" became a standard legal reference, and it is no small matter that English liberties and the legal rights of subjects were defined for future centuries. From the year 1200 to the end of the Middle Ages about eighty universities were founded in Europe. Marco Polo's pictures from the east contained nothing of "the white man's burden" or of the starvation and misery of today.

However, the most important aspect of this period was that of true charity, which permeated every aspect of living and which persisted until the destruction of the monasteries and religious houses by Henry VIII. The stage was set for the Elizabethan Poor Laws. Charity became pauperistic and debased, and the full devoted meaning of *caritas* was lost for centuries. The only losers were the poor, the sick and the insane. G. M. Trevelyan states that "Barts, St. Thomas' and Bedlam were saved and refounded under lay control. The disendowment of hospitals was more injurious to the poor than disendowment of monasteries". Trevelyan concludes "the hospitals had been founded to help the poor and had been placed where they were most needed". In her study of mediæval hospitals R. M. Clay states that there were 750 such charitable institutions in mediæval England, which in a population of a few millions seems to provide more welfare than the modern welfare State.

In 1406 only six patients were confined to Bethlem (it became Bedlam later), compared with 8000 confined in the State of Victoria today, and yet the population of England at that time was about 2,000,000. A high certification rate is a product of urban criteria for certification. An interesting feature of the mediæval period was the amount of freedom accorded psychotic patients. "Bedlam Badges" conferred privileged treatment on the wearers and were often stolen by "sturdy beggars". The colony at Gheel in Belgium, founded a thousand years ago, set a standard for enlightened treatment of the insane. Zilboorg sees fit to mention this in the final section of his history, and adds "both private and public patients live in cottages or private homes where the greatest personal liberty is granted".

Pauperistic charity began in the sixteenth century, and the seventeenth and eighteenth centuries saw the rise of large mental hospitals to serve the growing towns. The mentally disordered were a nuisance in the arenas of systematized greed. The report of a committee appointed in 1815 to investigate the conditions in "madhouses" in England revealed murder, cruelty and depravity which beggar description. During the last few centuries such conditions cannot be separated from other aspects of social history. In a recent history of nursing Pavey emphasizes the social background of the nineteenth century, of "the slavery of women and little children in mines, collieries, brickfields, mills and factories". Incidentally, it is of some interest that these appalling social conditions did not give rise to an increase in the major psychoses, but did give rise to delinquency, crime and widespread alcoholism. In this setting Pavey describes conditions in English hospitals a century ago as being "so bad as to be almost unbelievable". They provide the stage for Elizabeth Fry and Florence Nightingale and the rise of secular nursing nourished by the great developments in surgery and general medicine. These rapid advances took academic medicine away from psychiatry until two world wars and the notions of the welfare State enforced recognition of the widespread psychiatric disorders among its citizens.

A common notion about the mediæval period is that all mental and nervous disorders were regarded as due to witchcraft and demoniacal possession, the treatment being burning or exorcism. The fact is that belief in witchcraft and demoniacal possession reached its heights centuries after the Middle Ages. The last executions for witchcraft were in Germany and Switzerland in 1775 and 1782 respectively. Capital punishment for witchcraft was instituted in England in 1562, during the reign of Elizabeth, and not repealed until 1735. In 1563, on the Continent, Johann Weyer, a deeply religious man, published his famous work condemning the prevailing attitude towards witchcraft and demonology, and anticipating Freudian mechanisms. Fears generated by political, religious and economic turbulence during the sixteenth, seventeenth and eighteenth centuries are sometimes blamed for the vehement interest in witchcraft and demonology during the period from the sixteenth to the eighteenth century. Yet the obvious sexual content of much of the recorded phenomena and the kind of testimony tendered suggest that sexual factors exemplified in Freudian psychology are more likely.

These centuries saw the rise of a hypocritical and prurient kind of sexuality, which had little place in the Middle Ages. In fact, mediæval thinkers put lust in third place after pride and greed—and well they might, for what subsequent centuries showed. The family life of Saint Thomas More, Henry VIII's chancellor, makes interesting reading when contrasted with the secret and prurient sexuality of Freud's Vienna described vividly by Stefan Zweig in "The World of Yesterday". The Vienna of Freud's time is brought to us in the French film *La Ronde*. In the seventeenth century manuscripts of John Aubrey there is a delightful story of how Thomas More ended the dilemma of a suitor who loved two of More's daughters. Chaucer's fourteenth century common sense and wit would find a suitable target in the St. Kilda bathing regulations of sixty years ago. No recognized moral theologian taught that the sexual instinct was anything but good, and certainly never attached dire consequences to infantile and childhood sexual manifestations. Urban, industrialized, bourgeois society provided the hypocrisy and prurience into which Freudianism was born.

Beccle's comments about the mediæval attitude towards the insane exemplifies the usual Orwellian falsification of history. Clay describes how St. Bartholomew's Hospital in the twelfth century admitted psychotics among the general medical patients—a common practice in the Middle Ages. One of the most widely read books during this period was "The Properties of Things", by a Franciscan called Bartholomew the Englishman, in which insanity is attributed to diverse emotional stress, rabies, autointoxication, alcohol and other causes. Bartholomew states that "as the cause be diverse, the tokens and signs be diverse", and he concludes his writing on treatment with the following remarkable statement: "And they must be gladded with instruments of music and some deal occupied." Zilboorg does not dwell too long on Bartholomew, stating that he was "an unusual exception". How could Bartholomew be an exception when, before the invention of printing, his book was translated into six European languages, the French translation being a monument of French literature of that period. It was published in three editions before 1500 and twelve afterwards, and was a prescribed book for clergy.

Demonology was out of favour, although exorcism was practised for some mental and nervous conditions, and therein lies much interest. In the intense belief and ritual surrounding exorcism, Charcot's work with psychoneurotics is anticipated; but the most striking parallel exists between exorcism and Rosen's work with schizophrenics. The common denominators in the methods are intense belief in their efficacy, fearless affection for the patient, and ultimate contact with him through the maze of disordered symbolism and the allaying of fear. Rosen, with the honesty characteristic of true Freudians, but not their satellites, makes the following statement: "I wish to frankly admit that it is not at all clear in my mind what the fundamentals of this method are." He claimed that the deepest possible knowledge of the unconscious was essential, and that he

was "called upon to converse with the patient in the language of the unconscious and to be in a position to interpret the unconscious to him at every single opportunity". The exorcist claimed to converse with the evil spirit, finally banishing it through the symbolism of prayer. Jung might say that the symbolism of the prayer and ritual were conscious representations of archetypes in the patient's collective unconscious. Charcot might say that it was the prescriber and not the prescription which mattered. It was traditional that only certain priests were good exorcists, and Rosen might have trouble in training assistants.

From Rosen's work emerges again the benefit of individual attention to the psychotic. It is tempting to draw an analogy between the subtle disorientation of the major psychoses and the crude disorientation of the organic psychoses, both resulting in secondary psychological elaborations on the part of the patient, with consequent increase in fear and confusion.

The removal of these secondary symptoms by psychological or situational measures must clear the way for an attack on the primary symptoms. The tendency to spontaneous remission in the major psychoses is well known, and one wonders how many such spontaneous remissions have failed to occur through neglect of psychological and occupational therapeutic measures. Mental hospital design militates against individual attention to patients, with its wards scattered over many acres of ground. There is no reason why multi-storied blocks or wards incorporating modern technical features should not be constructed. Lifts would simplify transfer of patients, food, linen and stores, and movement of staff, and permit the walking patients to be taken to various parts of the institution, rather than remain confined to airing courts adjacent to where they sleep.

General medicine and surgery advanced to its high degree of present-day efficiency free from State interference, while the vast neglected field of psychiatry remained almost entirely a State function. What can the State bestow upon the insane, when it is beset with unemployment, poverty or war? Its expedient, variable and impersonal motives render success unlikely.

One of the most extraordinary aspects of the history of psychiatry has been its relationship with academic medicine and the teaching hospitals. Despite the magnitude of its scope it has not been presented as a serious subject to medical students. No one would deny the greatness of the advances in surgery and medicine during the last half-century, but advances by ambitious and energetic generals in war are notorious for their risks to the whole front. Psychiatry has paid bitterly and needlessly because of this. Despite the immense clinical and pathological interest of the disorders suffered by the 8000 patients in our mental hospitals, nothing has ever been done to turn the natural curiosity and fervour of medical students in this direction.

Mental and nervous disorders were regarded as subjects for bovine humour, and to some extent still are. Medical text-books such as Boyd's "The Pathology of Internal Diseases" or Best and Taylor's "The Physiological Basis of Medical Practice" do not mention schizophrenia, mental deficiency or the problems of the organic psychoses. Yet at the first International Congress of Neuropathology to be held this year, four out of six days are to be spent on psychiatric problems. In the past, text-books of clinical medicine have had a small section on psychiatry without any attempt to integrate this subject with the general teaching of medicine. It is extraordinary how quickly the scientific curiosity of students can be roused, as is exemplified well in recent years by the subject of congenital heart disease.

The inspirational factor in medical teaching seems to have given way to impersonal didacticism. In recent times teaching programmes in psychiatry have been implemented, but these will not offset the bias and ignorance among students unless teachers in all branches of medicine and surgery cooperate. The jeers of a practitioner of an impersonal specialty may undo the whole programme. However, if such a specialist is competent to teach the psychiatric aspects of his own specialty, the work of the psychiatrists is reinforced. At the very heart of the mental hygiene problem are the medical student and the trainee nurse. It is impossible to over-estimate the influence of clinical teachers. The young graduate reproduces the ideas, speech and mannerisms of his seniors, and has been diverted from psychiatry by their example. This is the greatest single factor in the condition of our mental hospitals today. Even if the spirit of *caritas* is deficient, the spirit of scientific inquiry may initiate great progress.

The inspirational element in medicine and surgery recruited its own nursing staff. High wages and amenities do attract certain types of doctors and nurses, but certainly have never stimulated any notable work or devoted service. Although attempts to socialize medicine in recent times have provoked opposition, the centuries old committal of thousands of mental patients to the care of the State has hardly ever been questioned. Such committal puts great moral responsibility upon the State, as there is no class of individual more vulnerable to exploitation and ill-treatment.

During the last half-century Victoria has owed a great deal to the small group of medical officers of the Department of Mental Hygiene who struggled against all kinds of opposition and frustration in their care of the insane. It is well to remember that even their most mediocre colleagues earned large incomes in other types of medical practice. Misdirected criticism of the Civil Service is common, but an incorruptible, devoted Civil Service is the very keel of democracy. Wedged between the vagaries of the popular vote and party politics, it is the only stabilizing factor in democratic government. From my earliest childhood I watched my father steer his unswerving course between these forces and messianic private groups.

The indifference of academic medicine and the State towards psychiatry is partly due to unfortunate developments in psychiatry itself. Glover, whose dogmatic psychoanalytic writings reach heights of absurdity, speaks of "an extensive though blindfold acquaintance with the insanities". The implication here is that psychiatrists who possess a wealth of knowledge of factual descriptive psychiatry are useless because they do not wholly accept Freudian mechanisms. Glover states that eclecticism "can seriously hamper the development of psychological science". Many psychiatrists, like myself, initially attracted to Freud's teachings had to modify them greatly because they do not fit the facts.

Unlike most scientific workers, Freud did not accept the fragmentary nature of his contribution to knowledge, despite the assured place of modified Freudianism in the psychiatry of the future. Freud postulates universal ingredients in the mental life of all human beings, and they are of a kind which must appear in some form or another in every person's history, which Freud has earmarked in his captivating terminology.

Before any theory of psychogenesis can be accepted, it must be relevant and adequate, in relationship to the symptoms produced. As a speculative philosophy Freudianism has had considerable success among normal people, and it seems as if Freudianism is more of a psychopathology of everyday life rather than a pathology of specific disorders. In the *British Medical Journal* last year, Scott, director of the London Clinic of Psychoanalysis, presenting psychoanalysis to the general practitioner, stated that the question of its value as a form of treatment "cannot be answered yet to anyone's satisfaction". Attempts to prove the value of psychoanalysis over other forms of psychotherapy have not been successful, despite at least twenty-five years of practice.

In Glover's survey of technique in psychoanalysis, half the analysts he questioned admitted to preconceived theoretical outlines in their approach to cases. No one who has studied Freud's life would cherish anything but admiration and respect for him. There are also splendid by-products which no humanitarian can ignore, one being an increased interest in the mental life of the individual, and another the care and attention now paid to the early life of the child. The matter would rest here, except for the large debit side of Freudianism in clinical psychiatry.

In recent years, particularly in America, Freudians act as a pressure group, and their claim to unique powers influences the novice and hinders the unification of psychiatry with general medicine.

Zilboorg attacks Kraepelin, Griesinger and Maudsley for their attempts to classify and describe mental diseases in a manner analogous to that of the clinicians of medicine and surgery. Kraepelin is attacked for his preoccupation with diagnostic entities with their course and prognosis, and Griesinger and Maudsley for their neuropathological interests which Zilboorg kindly names "their brain mythology". Psychiatry is the only body of knowledge in which the presentation of theory and fact is inverted. This inversion has been brought about by the histrionic enthusiasms of writers like Zilboorg. To say that the descriptive classificatory stage in the development of psychiatry is finished is the most arrant nonsense. It has hardly begun. Even when Darwinism preoccupied professors and students, factual descriptive anatomy remained the basis of teaching and examinations. In the presentation of psychiatry to students and practitioners factual descriptive psychiatry has not produced any text-book of importance devoted exclusively to descriptive psychiatry. Apart from the multitude of organic psychoses there are many variations in the schizophrenic and manic-depressive group of psychoses, their incidence, onset, course and prognosis, to which there are scattered references in the literature, and which the student absorbs at random. Mention might be made of Bleuler's differentiation of primary and secondary symptoms in schizophrenia, and of Meduna's endogenous and symptomatic schizophrenias.

Psychology provides a contrast because the modern psychologist has a foot in two camps. In physiological psychology he has marshalled an impressive array of facts with intense significance for education and industry applicable to the nation's life in peace or war. In fact there is a vast psychological literature in which there is hardly a breath of philosophical speculation, and in the measurement of intelligence and aptitudes the psychologist has made a great contribution to clinical psychiatry. Glover's gibe that psychoanalysis gives modern psychology its vitality is quite false, for philosophical psychology could topple and leave scientific psychology intact, and it is well to remember that Freud, Jung and Adler were not primarily psychologists or philosophers, but physicians experimenting in therapeutics. By contrast, psychiatry has not marshalled its vast body of facts.

Students of psychiatry who should be history-taking in mental hospitals are chewing over the magic words "dynamic" and "depth" or ruminating on their analyses. The new Mental Hygiene Authority ought to perpetuate the fine lectures in descriptive psychiatry given to generations of medical students by Dr. John Adey. Such a clinical teaching centre would become the focal point for students and nurses in Victoria. The unfortunate isolation of psychiatry from the teaching hospital is partly due to this inversion of fact and theory. The student of psychiatry ought to know that his main value to his medical and surgical colleagues is in the matter of accurate diagnosis and assessment of a patient, rather than in the acquisition of that fashionable "analytical façade", with facial expressions and gestures, well ironed out. In the teaching of medicine and surgery emphasis is rightly placed on observable facts.

The wholesale presentation of mechanisms in place of the known clinical facts produces the most unfortunate results in the law courts. Consider the following case.

A man, aged fifty years, had a past history of indifferent health and some fainting turns. There was a recorded history of a fugue, in which he wandered behind the enemy lines for some days in the first World War. His relationship with his wife was unsatisfactory in every aspect. There was an only son, adolescent, suffering from an obsessional state. The boy's illness was the father's constant preoccupation, because he thought that it was due to his parental failure. One day the father wandered into a neighbouring farm, distressed and incoherent, and said something had happened to his son. The body of the latter, showing extensive head injuries, was recovered from a dam. The counsel for the defence refused to plead insanity, because there was no convincing legal evidence, before or after the killing, that the father was insane. However, with the help of psychiatric and psychological evidence the barrister constructed a most ingenious theory to explain the tragedy. He argued that the father had a fugue similar to the one in the first World War. While in this dream state he mistook his son, working in a paddock, for an enemy soldier. Counsel used the psychometric tests to show evidence of hysterical depression and therefore proneness to fugues or dissociated states. Confronted by what appeared to be a chain of scientific factual evidence, the jury acquitted the accused.

None of the evidence in this case was based on factual descriptive psychiatry, but on theoretical mechanisms. Individuals in fugues or dissociated states are usually pleasantly or gainfully occupied. Furthermore, I know of no homicidal act which has ever been committed in a true hysterical fugue. Experienced clinical psychiatrists are very circumspect in the matter of hysterical fugues. In this case descriptive psychiatry would emphasize either a depressive psychosis or epileptic confusion. Months later the man was admitted to a mental hospital suffering from a depressive psychosis with paranoid features.

Sifting of the life history for possible mechanisms and the application of psychological tests are of negligible importance compared with the clinical facts, and judges and juries are thoroughly confused as to what is fact and what is theory in psychiatry. Exaggerated claims are made for the diagnostic value of psychometric testing, whereas it is an occasional valuable adjunct to clinical diagnosis, and often fraught with considerable difficulty in the matter of interpretation.

One of the main reasons why psychiatric and psychopathological jargon is so widespread is that the individual has an intense interest in the mysteries of his own nature and destiny. Our own genial philosopher, Walter Murdoch, is often questioned by newspaper readers as to whether they have souls, and he replies wisely that the human soul is the only thing in the universe which doubts its own existence. There are many people with diverse beliefs who share a common belief that the individual has a soul whose ultimate destiny is union with God. There is no higher concept of human dignity than this, that man's creative genius proclaims his kinship with the Creative Genius behind the universe. Such people believe that there is a qualitative difference between the highest ape and the lowest man, evidenced by self-awareness and exteriorized in a multitude of ways. In contrast to the first cave drawings and the creative achievements of man, there is no evidence that apes hold exhibitions of self-portraits or produce books of nostalgic verse. Years ago it was the custom of "progressive" thinkers to refute man's spirituality by quoting neurophysiology; but in recent years the brain has been a disappointment in the matter of self-awareness and self-scrutiny. One can remove extraordinary amounts of brain tissue, only to find the patient sitting up with the profound observation: "I am not myself today." It was apparent that the neurosurgeon had removed neither the ego nor all the non-ego portion of the mind.

In recent years "progressive" thinkers have sought solace in Freudian, Jungian or behaviouristic theories of the mind, and many people think that the idea of man's spirituality has been refuted by scientific discoveries, without ever troubling to examine the evidence. The extreme materialism of the nineteenth century gave the schools of medical psychology a flying start, and in a philosophically destitute age their teachings spread rapidly. Freudians and Jungians tussle over their maps of the mind. Glover abuses Jung for lack of clarity, as if a simple map, which is wrong, has any more use than an obscure one. Most students are confronted at some time with the Freudian map showing the ego, super-ego and id, consciousness and unconsciousness, drawn with a clarity which must make the United Nations Organization envious. There is no mention of a soul on this map, and its introduction might cause as much embarrassment as it would into the United Nations Organization, if some of Brock Chisholm's statements are to be believed.

One difficulty about discussing the Freudians' beliefs is their contention that these cannot be accepted unless one

has undergone a successful Freudian analysis. Thus Freudianism is a closed circle, one half being doctrinal and the other half a technique for making sure that the doctrines will be accepted. Note the emphasis on successful analysis. No one is really at liberty to break off an analysis for reasons of intellectual freedom, without achieving the notoriety of being the victim of one's "unconscious resistances". The circle begins and ends with Freud, and if a part is disbelieved it means that one's analysis is defective. As with most Freudian teaching, there is more than a half truth in the idea of a personal analysis in conformity with the oracular injunction to "know thyself"; but many psychiatrists are disinclined to look for self-knowledge in tangled beliefs. The effect of the Freudian pressure group on the young psychiatrist is to make him feel that he is outside an exclusive club possessed of great inner knowledge. The heroic days of psychoanalysis, when Freud stood alone against all kinds of misdirected criticism, differ considerably from Freudianism today, with its horde of camp followers. The Freudian map of the mind offers an explanation of all mental functioning without having to invoke spiritual concepts of the soul or of God.

The term ego refers to the hard core of consciousness which people call "I". Now the term ego has become confused with ego-attributes, and many people speak of egotism and of having an "inflated ego". This confusion has led vigorous psychoanalytic heretics like Horney and religious writers like Fulton Sheen to use the term "self" for the inner core of consciousness and to use the term "ego" for the varying cluster of attributes, ideals and notions which surround the inner self or "I". Yet the ancient use of the word ego corresponds roughly with the Freudian use, to describe the subject "I" in contrast with the vast non-ego portion of the mind. Conflict between the ego, conscience and the animal instinctive aspects of human nature has been a subject for philosophy and drama since thousands of years before Freud.

Freud gave form and emphasis to the fact that the instinctive animal aspects are often below the surface of consciousness in the portion of the mind designated the "id". He pictures the new-born child as animal consciousness, Freud then explaining that the ego or nuclear "I" develops out of this animal consciousness or id by contact "with reality". Thus the ego is induced in the id by "reality", in the same way as the corn is induced on the foot by the rubbing of the shoe. No qualitative difference between the ego and the id is postulated, because that would be "unscientific". The super-ego or Freud's conscience described by him as the heir of the Œdipus complex arises out of the child's relationship with the parents in the first five years of life. Yet according to Freudian theory both the ego and the super-ego have unconscious portions in close association with the instinctive id. Psychoanalytic theories often present striking half-truths. In their concept of the deep-rooted conscience in the super-ego, Freudians approximate to the moral theologians' idea of the natural law. In fact, there are many religious thinkers who are deeply sympathetic towards Freudianism and who believe that Freud has initiated the return to older concepts of moral responsibility. I believe this, too, but my criticism is based on the practical business of clinical psychiatry.

Glover makes this statement: "To use modern psychoanalytical terminology the scrutinizing and criticizing part observed by introspection is a conscious facet of the real ego, which in turn is responsible for carrying it out." But Freudians like Glover have already described the ego or "I" and the super-ego or "conscience" as developing from the basic animal instinctive consciousness they postulate in the infant. In other words, they say that these structures developed from the id. They say that what is now scrutinized gave rise to the scrutineer—as if the corn which developed from the skin suddenly achieved autonomy and told the skin in no uncertain terms to go to another shoe shop. It is a pseudoscientific argument of a Darwinian imitator. How can the id, the repository of animal instinctive drives, give rise to the ego and the super-ego, when such drives and their associated mental content owe their recognition to the ego and super-ego? The difference between these structures is qualitative, not quantitative. As a matter of fact, in psychoanalytic practice it is the ego and super-ego of the analyst which collect the material from the person being analysed and hand it back. Furthermore, Freudians use the ego to bring back to consciousness the manifest content of dreams, which they regard as "the royal road to the unconscious". Some dreams, such as that of the tycoon who sees himself as a lonely penniless child, give a good example of the ego or self stripped of all conscious ego-attributes. The strange feature of such dreams is that the hard core of consciousness, called "ego" or "I", can make this journey into the unconscious and bring back the material for interpretation. Jung juggles somewhat with the position of the ego, for which Glover swoops upon him vehemently. Yet it is suggested that these structures have their origin in ordinary animal unconsciousness.

Some great thinkers, such as Bertrand Russell, regarding religion as a superstition, or an illusion as Freud does, resort to quasi-scientific thinking to explain the ego or the nuclear "I". Bertrand Russell states that self or "I" or the ego is "nothing but a bundle of perceptions", and he continues:

> It does not follow that there is no simple Self; it only follows that we cannot know whether there is or not, and that the Self except as a "bundle" of perceptions cannot enter into any part of our knowledge. This conclusion is important in metaphysics, as getting rid of the last surviving use of "substance". It is important in theology as abolishing all supposed knowledge of the "soul".

Hence we have the spectacle of Bertrand Russell's ego or self constantly scrutinizing the perceptual content of his mind, and yet he believes it to be "nothing but a bundle of perceptions". It reminds me of a field of wheat in which a bundle of sheaves takes over the harvesting of the others.

I am interested, too, in the bundle of perceptions which supposedly went into the ego of the heroic Helen Keller, whose illness in early infancy "closed my eyes and ears and plunged me into the unconsciousness of a new-born baby".

In the study of perception the *Gestalt* school of psychology has made fruitful contributions. Yet it repudiates the notion that the nuclear ego is perceptual, Koffka stating "how this point-core of self was formed we do not know". Koffka emphasizes the ego as a necessary postulate. Note the use of the term "point-core" for the nuclear self or ego, as if to whittle down any notion of "substance". Perhaps all thinking apart from the nuclear self is perceptual; but the child of three who asked "Where has yesterday gone?" might pose a problem.

Belief in the soul and its kinship with God through our fellow men gave rise to the best chapters in history and to hope for the future. From Saint Vincent de Paul to Albert Schweitzer, to the Quaker Tuke, the religious motive has brought light out of darkness. Shall I tell the medical student and trainee nurse, faced with the harder and dirtier aspects of caring for the sick, and beguiled by our moronic culture of consumer goods, that their innermost selves are naught but "bundles of percepts"? Zilboorg gives much emphasis to incidents of religious fanaticism; but the mass cruelties and neglect in mental hospitals in recent centuries were due to the lack of religious belief. No centuries have seen widespread cruelties like our own. What transpires between nurse and helpless mental patient is entirely a matter of what the nurse believes.

Helen Keller's story should be a warning to those who assume that mental defectives have no interior mental life. Inability to exteriorize thought, as exemplified in senile and arteriosclerotic dementias or deteriorated schizophrenics, invited the gas chambers in Europe during the war. It is my belief that the nuclear ego is never split or destroyed, and in the most unlikely cases sudden transient exteriorization of thought occurs. During the treatment of a disorder such as schizophrenia it is not uncommon to find the patient's ego or self emerge from the maze of hallucinatory and delusional content during

transient periods of lucidity. This is even more striking in the rare spontaneous remissions after decades of mutism and incoherence.

In a book called "The Perennial Philosophy" Aldous Huxley endeavours to extract the highest common factor from various religious beliefs, and he quotes Francis de Sales as follows: "Charity is the only virtue which rightly unites us to God and man. Such union is our final aim and end, and all the rest is mere delusion." Soldierly psychiatrists need have no fear, for true charity is not maudlin, and although Ella Sharpe has psychoanalysed dead people like Francis Thompson and Shakespeare's Hamlet, whom she could never have met, she seems to have left the Good Samaritan alone.

Secular humanitarianism, to which the State pays lip service, is waging a losing battle with the forces of pride and greed, and the shadow of our hedonistic culture lies over our tasks in psychiatry. The very rich and the incredibly poor rarely forsake their insane, but the aspiring middle class, filled with suburban ignorance and shame, abandon the hereditary casualties of their own family group, even though such hereditary casualties are almost a biological guarantee of their own survival. Both practitioners and public need the inspiration of an Albert Schweitzer. Meanwhile, is it too much to ask that the faculties of medicine divert their best students to a field which they have consistently neglected? Yet surely the first step is for psychiatry itself to present a firm foundation of all its known clinical facts and keep its theories in the background.

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THE OCCURRENCE OF SECONDARY MALIGNANT DISEASE IN THE SPLEEN.

By G. W. MILTON,

Teaching Fellow in Anatomy, University of British Columbia, Vancouver, British Columbia, Canada.

IT has long been known that the spleen is an unusual site for secondary deposits of malignant disease. Stephen Paget in 1889 reported 735 autopsies on subjects who had died of cancer of the breast. In 214 cases malignant deposits were found in the liver. In only 17 cases was secondary cancer found in the spleen. The rarity of splenic metastases has been confirmed by later workers. The reported frequency of splenic metastases varies between 3·3% and 4·6% (Kettle, 1912; Kitain, 1922; Orlandi, 1927; Willis, 1934; Warren and Davis, 1934; Herbert and Gabriel, 1942).

Harman and Dacorso (1948) analysed the results of 30 post-mortem examinations of subjects who had died from widespread malignant disease in the thorax and abdomen. Fifteen of their patients had secondary deposits in the spleen; in six of these the deposits were microscopic.

Sappington (1922) reported a case of carcinoma of the breast in which autopsy revealed a diffuse infiltration of the spleen with malignant cells. Macroscopically the spleen appeared normal. Willis (1934) also comments on this type of diffuse infiltration. It is important, therefore, to submit the spleen to microscopic examination if all cases of secondary spread are to be detected.

The purpose of the following investigation was: (i) to examine the results of a series of complete autopsies in which in every case the spleen had been examined microscopically; (ii) to study the frequency of splenic metastases in relation to the primary site and to the arterial, venous and lymphatic connexions of the spleen; (iii) to compare the size of splenic deposits with those in other organs;

TABLE I.

Group.	Number of Cases.	Splenic Metastases.
I: Portal drainage area	273	6 (2·2%)
II: Extra-portal drainage area ..	366	19 (5·2%)

(iv) to find the age and sex incidence of metastatic lesions in the spleen; (v) to look for any constant sign, symptom or alteration of the blood picture in cases with secondary deposits in the spleen.

Method.

All autopsies from January, 1948, to June, 1951, performed at the Vancouver General Hospital, were investigated. Included in the series were subjects who had died with, but not necessarily from, malignant disease. Exceptions were made in the following instances: (*a*) when subjects had previously had the spleen removed; (*b*) when blocks of tissue had not been obtained from the spleen for microscopic examination; (*c*) when the primary site was unknown or doubtful; (*d*) when intracranial neoplasms were present; (*e*) when data were incomplete.

The autopsies were complete; that is to say, the cervical, thoracic and abdominal viscera were examined macroscopically and microscopically. The brain was examined only in those cases in which neurological signs had been present. The anterior parts of the lumbar vertebræ were examined. The microscopic sections were reexamined in those cases in which widespread malignant deposits had occurred, and additional sections were cut from the blocks.

Any clump of apparently viable malignant cells was counted as a secondary deposit.

Direct invasion of the spleen which was continuous with the primary growth was not classed as a secondary deposit in this series.

Results.

During the three and a half years under review, 3620 autopsies were performed; 639 patients died with malignant disease and 25 (3·9%) had malignant deposits in the spleen.

The primary neoplasms were divided into two groups: Group I (273 cases), in which the primary lesion was found in the alimentary tract from the abdominal part of the œsophagus to the rectum, "the portal drainage area"; Group II (366 cases), in which the primary lesion was in an organ drained by systemic veins, "the extra-portal drainage area" (this including the bladder, prostate, uterus, ovary, kidney, lung and breast, as well as the limbs and

TABLE II.

Distribution of Malignant Lesions in Cases with Secondary Carcinoma of Spleen.

Case Number.	Site of Primary Lesion.	Site of Secondary Deposits.										Type of Malignant Growth.
		Lungs.	Liver.	Kidney.	Adrenal.	Brain.	Pancreas.	Bone.	Ovary.	Pericardium and Heart.	Lymph Nodes.	
63	Right lung.	−	+	..	..	..	..	..	..	..	..	Oat-cell carcinoma.
69	Right lung.	−	..	..	Right.	..	..	..	..	..	Mediastinal, *porta hepatis*.	Oat-cell carcinoma.
89	Stomach.	..	..	..	..	..	..	Ribs, vertebræ.	..	..	..	*Linitis plastica*.
126	Left lung.	..	..	..	Bilateral.	..	..	Ribs, pelvis, hip.	..	..	Mediastinal, mesenteric.	Squamous cell, Grade 4.
157	Ascending colon.	+	+	..	Bilateral.	+	..	..	..	..	Paraaortic.	Adenocarcinoma, anaplastic.
163	Stomach.	Microscopic emboli.	Microscopic in veins.	..	Bilateral.	..	..	..	..	..	Paraaortic.	Adenocarcinoma, anaplastic.
188	Right lung.	−	+	Bilateral.	Bilateral.	+	..	..	..	..	Mediastinal, paraaortic	Squamous cell, Grade 3.
222	Rectum.	+	+	Bilateral.	Right.	..	+	..	..	..	Mediastinal, pelvic.	Adenocarcinoma, anaplastic, ulcerative.
239	Right lung.	−	+	..	..	..	..	..	..	..	Mediastinal.	Oat-cell carcinoma.
252	Breast (bilateral).	Microscopic.	+	..	..	..	..	Vertebræ microscopic.	Microscopic.	..	..	Adenocarcinoma.
259	Breast (bilateral).	..	+	..	..	..	..	Vertebræ, ribs.	Microscopic.	..	Cervical.	Adenocarcinoma, scirrhous.
273	Caecum.	+	+	..	..	..	+	..	+	Pericardium.	Paraaortic.	Adenocarcinoma, fungating, anaplastic.
313	Ascending colon.	Microscopic.	..	..	..	..	..	..	..	..	*Porta hepatis*.	Adenocarcinoma, moderate differentiation.
378	Prostate.	Microscopic.	+	..	Bilateral.	..	..	..	..	..	Mediastinal.	Adenocarcinoma, well differentiated.
380	Ethmoid.	Microscopic.	..	..	Microscopic.	Microscopic.	+	Vertebræ.	(Testis.)	..	..	Transitional cell carcinoma, anaplastic.
408	Right lung.	Left lung.	+	Bilateral.	..	..	..	Skull.	..	Myocardium.	Mediastinal.	Oat-cell carcinoma.
413	Right lung.	−	+	Bilateral.	Bilateral.	..	..	..	..	Myocardium.	Mediastinal.	Oat-cell carcinoma.
416	Left lung.	−	+	−	Microscopic.	..	..	Ribs.	..	..	Hilar.	Oat-cell carcinoma.
474	Ovary.	+	+	Right.	Bilateral.	+	+	..	−	..	..	Granulosa-cell tumour.
484	Melanoma (face).	+	+	Left.	Bilateral.	..	..	Vertebræ.	..	+	..	Melanotic sarcoma (malignant melanoma.)
496	Cervix.	Microscopic.	+	..	Left.	..	+	..	..	..	..	Squamous-cell carcinoma.
559	Right lung.	−	+	..	..	..	..	Vertebræ.	..	..	Mediastinal.	Oat-cell carcinoma.
599	Right adrenal.	..	+	..	−	..	..	Skull, ribs.	..	..	Paraaortic, cervical.	Neuroblastoma.
609	Seventh thoracic vertebra.	+	+	Left.	Right.	..	+	Skull.	..	..	Paraaortic, axillary.	Chondrosarcoma.
612	Adrenal (bilateral).	+	+	Bilateral.	−	..	..	..	..	..	..	Adenocarcinoma, anaplastic.

TABLE III.

Size[1] of Primary Lesion and Secondary Deposits in Carcinoma of the Lung with Splenic Metastasis.

Lung.	Liver.	Kidney.	Adrenal.	Pericardium and Heart.	Spleen.	Type of Carcinoma.
5	Many nodules 1–2.	—	—	—	Microscopic clumps of cells.	Oat-cell.
6–7	—	—	Replaced.	—	—	Oat-cell.
3–4	—	—	6	—	1	Squamous cell, Grade 4.
2–3	1–5 Nodules vary in size.	0·2–0·5 Nodules.	Replaced.	—	0·2–0·5 Nodules vary.	Squamous cell, Grade 3.
0·5–1	4–5 Nodules vary.	—	—	—	Microscopic.	Oat-cell.
Primary resected. Size unknown.	1–3 Nodules vary.	1–2 Two nodules.	—	0·5	3	Oat-cell.
3–4	6	1	4 (Microscopic on opposite side.)	0·5	2	Oat-cell.
1–2	1–2	—	Microscopic.	—	1–5	Oat-cell.
2	2–4 A great number.	—	—	—	0·3–0·4 Many nodules.	Oat-cell.

[1] Size measured in centimetres in all cases.

the head and neck). Table I shows the incidence of secondary deposits in the spleen from the two groups.

The spleen was not involved in any case in which the primary growth was still relatively localized. Details of the 25 cases with secondary deposits in the spleen are given in Table II. This also shows the primary neoplasm and the distribution of other metastases.

Bronchogenic carcinoma was the primary newgrowth which most frequently spread to the spleen; 9% of bronchogenic carcinomata had metastasized to the spleen. With one exception, primary neoplasms with splenic metastases arising in the portal drainage area involved the lungs. This suggests that the spreading malignant cells had the opportunity to reach the arterial circulation. In Case 89 (*linitis plastica*) there were secondary deposits in the ribs and vertebræ, which indicates that in this case also the malignant condition had access to the arterial tree.

The age of patients with splenic metastases varied from three and a half years to eighty years, and was not significantly different from the age of all patients with malignant disease.

The macroscopic and microscopic appearances of the splenic deposits were not remarkable. In 16 cases there were deposits visible to the naked eye; the largest of these was a nodule four centimetres in diameter, but there were several with multiple lesions about two millimetres in diameter. The average size of all macroscopic splenic secondaries was 1·2 centimetres, and there was no difference between the size of the macroscopic lesions in men and women. The microscopic deposits were more frequent in males (seven cases) than in females (two cases). However, the series is too small to allow any conclusions to be drawn from this finding.

There was no correlation between the age of the patient and the size of the secondary deposits.

Bronchogenic carcinomata, by involving the radicals of the pulmonary veins, spread readily into the arterial circulation and thus have the opportunity of reaching the liver, spleen, adrenal and kidney at about the same time. A comparison of the size of metastases in these organs is given in Table III.

Metastases in the liver were always larger than and often ten times the size of the splenic deposits.

The adrenal gland also provided better soil for the secondary growth, as four times out of five the deposit was larger than the growth in the spleen. In one case there were microscopic deposits in the adrenal gland with visible growths in the spleen.

Only in three instances was it found that the spleen and kidney were involved from the same primary growth. In one of these cases deposits of about the same size were present in both organs, and in the other two the splenic deposits were slightly larger.

The microscopic deposits in the spleen consisted of small clumps of cells, usually between 10 and 40 in number, scattered throughout the red pulp. No cases were found in which these clusters of malignant cells were seen in the lymph follicles (Malpighian bodies), the trabeculæ or the subcapsular lymphatics. Di Biasi (1926) describes a dense reaction of plasma cells and lymphocytes about these small clusters of invading cells, but this was not seen in any case in this series.

Harman and Dacorso (1948) reported finding microscopic secondary deposits in the spleen in 50% of cases with widespread malignant disease.

Two hundred and eleven patients in this series had malignant deposits in both thorax and abdomen. Table IV shows the distribution of secondary deposits found in various organs.

TABLE IV.

The Distribution of Secondary Deposits in 211 Cases of Widespread Malignant Disease Involving the Thorax and Abdomen.

Site of Metastases.	Number of Cases.
Spleen	25 (11·8%)
Right kidney	23 (10·9%)
Left kidney	22 (10·4%)
Right adrenal	48 (22·2%)
Left adrenal	49 (22·7%)
Thyroid	1
Liver	141 (66·5%)
Right lung	119 (56·3%)
Left lung	125 (59·2%)
Brain	27 (12·8%)

The frequency of malignant involvement of the spleen, adrenal, liver and kidney is approximately equivalent to the size of metastases in these organs from carcinoma of the lung (Table III). Thus both kidney and spleen are poor hosts in which the growth of malignant cells is slow and secondary deposits are infrequent. The liver and adrenal glands are good soil in which large metastases are frequently found.

Clinically there appears to be no sign which would demonstrate splenic secondary deposits. The spleens affected by malignant cells were not significantly larger than normal. The secondary deposits never grew large enough to be palpable. The blood picture also did not show any constant variation which would permit a diagnosis or even a suspicion of cancerous spread to the spleen.

Discussion.

The theories devised to explain the rarity of secondary deposits in the spleen have been based on the mechanics of the splenic circulation or the production of some unknown growth-inhibiting substance.

Before considering these theories more fully I should like to revise briefly some points in the anatomy of this region which may in part explain the lack of splenic metastases.

It has been said that direct malignant invasion rarely penetrates deeply into the splenic pulp (Aird, 1949). However, the strong fibro-muscular capsule would offer a barrier to direct penetration; so that this feature alone does not support the thesis of a growth-inhibiting substance. This mechanical barrier is also effective in accessory spleens. In a case reported by Brown (1926), in which the supernumerary spleen was buried in close relation to a carcinoma of the head of the pancreas, the capsule was not penetrated.

Lymphatic spread to the spleen is hampered by the poorly developed lymph vessels (Rouvière, 1938; Wood Jones, 1949; Ham, 1950). The spleen has no afferent lymphatics which drain from an organ in which malignant disease is common. The few lymph vessels that the spleen does possess originate in the Malpighian bodies and pass to the larger trabeculæ and thence to the subcapsular and capsular areas, and so to the lymph nodes at the hilum. Malignant permeation of lymph vessels must, therefore, be retrograde against the flow of lymph before it can reach the pulp. Retrograde flow is not common, as was shown by the fact that in this series small clumps of malignant cells were found only in the red pulp, in which there are no lymphatics.

Copher and Dick (1928) demonstrated that there was little mixing of blood in the portal vein. It seems unlikely, therefore, that malignant cells would be regurgitated into the spleen. Virchow (1849) believed that coughing might cause some back-flow of blood into the splenic vein, but the liver sinusoids would act as a buffer to prevent any such reversal of flow. Coughing could certainly cause regurgitation in systemic veins, but not along the portal vein.

It is left to the splenic artery to convey malignant emboli to the spleen. That this is the likely route for cancerous cells to take is shown by the clumps of cells found only in the red pulp. All carcinomata involving the spleen had access to the arterial circulation, as was shown by the frequency of deposits in the lungs and in sites that were at some distance from the primary growth, such as bones.

Di Biasi (1926) first reported that splenic metastasis occurring only when malignancy had spread widely—an observation confirmed in this series.

Bronchogenic carcinoma, having direct access to the arterial circulation with no filter between it and other organs, would be expected to have the highest incidence of metastases in the spleen, kidney and adrenal glands—and this is the case.

Kettle in 1913 postulated that the frequent contractions of the splenic capsule prevented malignant cells from taking root. Willis (1934) has pointed out that the lungs are more motile than the spleen and yet are frequently the site of secondary neoplasm. Even the heart is not immune. In this series there were twelve instances of malignant deposits in the myocardium. Also, a stationary organ such as the kidney does not have a higher incidence of malignant deposits than the spleen.

The obliquity of origin of the splenic artery has been suggested by Sappington (1922) as a possible explanation, the malignant cells being swept past the opening of this vessel. However, in 10 recently dissected cadavers the angle of the splenic artery to the hepatic artery or cœliac axis was never less than 90° In standard anatomical atlases (Spalterholz, 1923; Sobotta, 1928) the angle is not shown to be acute. The *Tænea echinococcus* is arrested as frequently in the spleen as in the kidney (Dew, 1948), and infarcts are not uncommon in both organs.

The theories of Kettle and Sappington are unnecessary to explain the infrequency of splenic metastasis and, as has been pointed out, are untenable on other grounds.

The gross anatomy of the spleen may well explain, or partly explain, the infrequency but not the size of splenic metastases.

Experimentally no growth-inhibiting factor has been demonstrated (Woglom, 1929). Malignant tumours have been successfully transplanted into the spleen of animals (Frankl, 1913; Goldman, 1912; Levin, 1913; Oshima, 1923). Fisher (1925) found the spleen a good medium for the in-vitro cultivation of Roux sarcoma. Splenectomy has no influence on the progress of malignant disease elsewhere in the body (Woglom, 1929; Morris, 1917).

Willis (1934) has suggested that sluggish malignant growth in the spleen is more likely to be due to the high oxygen tension and poor supply of carbohydrates than to hormonal factors. The spleen is not alone in this resistance to malignant invasion. Metastases in muscle are very rare. The bowel wall has a large blood supply, yet only five cases were found of true blood-borne secondary deposits in the intestinal wall. The kidney, urinary bladder and prostate can also be added to the list of organs in which true metastases are rarely seen. Schmidt (1903) has shown that even in the lungs a large proportion of malignant emboli die. The spleen, therefore, shares this property of poor host to malignant cells with many other tissues. The apparent rarity of secondary deposits is increased by the peculiarities of structure of the spleen.

The liver and adrenal glands are the exception rather than the rule. Willis (1932) has shown that the mitoses in secondary deposits of epidermoid carcinoma in the liver are more frequent and better preserved than in the primary lesion. The rate of growth in the liver is, therefore, faster than in the primary.

The slight female preponderance in this series is more likely to be due to the greater frequency of primary malignant lesions in the extraportal drainage area in women than to any sex difference in the structure or function of the spleen.

It is unfortunate that there appears to be no way of detecting splenic metastases before operation. Even if palpation of the spleen is feasible at operation, it is unlikely to be of much assistance; the metastases are frequently small and deep in the pulp.

If the spleen is sectioned after gastrectomy and discrete malignant deposits are found, the prognosis is bad. Widespread malignant disease is assured even if the liver appears free of carcinoma.

Summary.

A series of 3620 autopsies is reported, in which microscopic examination of the spleen was carried out in every case.

In 653 cases malignant disease was found, and in 25 of these there were demonstrable secondary deposits in the spleen.

The anatomical features of the spleen which explain the rarity of malignant lesions, but not the poor growth of such lesions, are discussed.

There was no clinical or clinico-pathological method of diagnosing malignant spread to the spleen.

Discrete secondary deposits in the spleen in any case of malignant disease indicate a bad prognosis, splenic deposits occurring only in those cases in which widespread arterial-borne metastases have appeared.

Some theories are mentioned that have been advanced to explain why malignant seedlings grow poorly in the spleen. A comparison is drawn between the spleen and other organs to show that many tissues share the property of being poor hosts to malignant cells.

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THE SCOPE OF MODERN INDUSTRIAL MEDICINE.

By ALAN L. LANGLEY,
Lithgow, New South Wales.

EVEN before the advent of Christianity, industrial hazards were recognized. Almost 500 years B.C. Hippocrates wrote about lead poisoning. Pliny (A.D. 23-79) records that masks were worn by those working in dusty atmospheres. A treatise on the diseases of miners was given by Paracelsus (1493-1541). Early in this century Sir Thomas Legge gave us his now famous axioms, and so on to our present time when industrial medicine has taken up its true perspective in the health of nations.

In 1944 the Association of Industrial Medical Officers pointed out that less than 25% of employed persons in Great Britain were covered with any form of medical service at their place of work.

[1]Read at a meeting of medical officers of the Joint Coal Board at Lithgow on February 15, 1952.

In 1945 the Royal College of Physicians of London issued a report on industrial medicine. In this comprehensive report they stated that a health service should be available not only to factory workers but to all workers at their place of work.

In 1949 the British Medical Association suggested that experiments in the type of service and administrative procedure should be carried out. Occupational health was defined as being concerned with the study of individuals in relation to the physical and psychological demands of their occupations, and the study of work and the work environment in relation to their effects on health.

Occupational health is now held to cover the subjects of industrial or occupational medicine and surgery, toxicology in relation to industrial hazards, industrial physiology and psychology, rehabilitation and resettlement, industrial hygiene and engineering.

The rapid expansion of industry and the gearing up of machinery to the pitch it has reached today bring an entirely new picture from that seen before the Industrial Revolution. When the majority of workers lived and worked in their own village there was the blacksmith, the carpenter, the tailor and the rest. They were all craftsmen, well trained and often indispensable. Today in industry, man has become only a cog in a big wheel at work. If he stays away the machine still goes on in his absence, and sometimes the worker does not even know to what finished article he is contributing. As the wheels of industry gather momentum they tend to catch up the very lives of the workers themselves; and so today they live in a world of "speed" and "high pressure", a world of uncertainty and doubts.

So we come to the modern conception of a medical service in industry. Too frequently, particularly here in Australia, industrial health is thought of in the light of workers' compensation with its demoralizing "compo" certificates, with no endeavour to prevent accidents, to adjust the worker to the varying circumstances of his work with its psychological strain, to make him happier at his work, and to rehabilitate him smoothly back into industry after accident or disease.

Industrial medicine opens to us the opportunity to give health to the worker, and if the worker has health it will bring him happiness.

First of all, the structure of industry must be studied carefully. The set-up of trade unions, employers' organizations, conciliation and arbitration, the function of labour management, personnel and welfare services, as well as the relevant legislation of industrial matters must be thoroughly understood as an introduction to the field of industrial medicine. Without a sound foundation the superstructure of an efficient health service in industry cannot be built.

Placement of Workers.

Industrial medicine is designed to prevent accidents and illness and to promote physical and mental health. The pre-employment examination is the first step in attaining this objective. It is to protect not only the employer but, more important, the employee.

Before the industrial medical officer is in a position to decide whether a particular person is fit for a particular job, he must understand thoroughly the work that is to be undertaken.

To be able to do this, he must study carefully at the site of work the conditions and hazards that pertain to that particular factory or industry.

Not until he has done this, and then made a full investigation of the worker's family and personal history, which includes their previous industrial history, is he in a position to assess the worker's physical and mental suitability to that particular job.

Occupational psychology is divided into two parts and contributes greatly in, firstly, the assessment of the man for the job and, secondly, the fitting of the job to the man.

The first is aided by vocational guidance, personnel selection and occupational training; the second by a study

of working conditions, improvements in design and layout of equipment, and improvements in the methods of work.

The industrial occupational psychologist is a technical adviser on problems to the management; after he has advised, the management carries out his suggestions. The plant and its working must be within the range of both the mental and the physical state of those who are to work it.

Now that the physical and mental status of a worker has been assessed, the industrial medical officer with his expert knowledge of the work to be done should be in a position to decide whether a particular man is suitable to the job and whether the job is suitable to the man. It is wrong to place a one-eyed worker in a job in which there is the added risk of a foreign body or chemicals entering his eyes, and so endangering his good eye, and it is a mistake to commence a young man as a cleaner or fireman in the railways when he has a latent hypermetropia, with every possibility that it will become manifest about the age of forty-five years, the time when he most likely would be the driver of a fast express locomotive. How disappointing for him to have to be relegated to a small and quiet branch line just at the time when he expected to attain the highest level in his vocation.

On the other side of the question there is the disabled person who very often can carry out expert work if placed in a suitable occupation, for example the blind employees of Kodak, Limited, who do expert work in the darkrooms of their London factory.

In other words, industrial medicine should not be a means of selecting the fittest people for industry but should endeavour to place workers in a job suitable to their health and within their capabilities.

The Routine Examination.

The routine or periodic medical examination is another function of the industrial medical officer. It gives him the opportunity of seeing how a particular worker is settling down in his job; Lloyd Davis suggests that all employees should be reexamined six months after their pre-employment examination for this purpose. It also allows for a particular worker to be observed over a period of time, and for the effects to be studied of any particular hazard that might impair the health of that worker either physically or mentally. It makes possible the earliest detection of illness or disease whether the illness or disease is of industrial, non-industrial or infective origin. It has been the means of wiping out many industrial hazards which were a major problem only a few years ago, and is helping to control the effect of radiation in this atomic age.

Industrial Environment.

It has been proved beyond doubt that those organizations which have studied and have put into effect the best working conditions have the least industrial troubles, and the least sickness-accident absenteeism figures.

The development of disease, physical, psychological or psychosomatic, manifest by minor sickness and absenteeism, high accident rates and high labour turnover, is an indication of fatigue. The attention to the factors which influence its onset and recovery, particularly the environmental factors, are an important part of the work of the industrial health team.

Canteen and welfare arrangements with the correct spacing of times between rest periods are important in relation to the causation of and recovery from fatigue, as is also the question of time and motion study which is helpful in cutting out unnecessary action.

The prevention of boredom is a means to offset occupational neurosis. Postural strain is combated by ensuring satisfactory physiological and anatomical aspects of machine design with adequate seating and also work benches of suitable design. It is of interest to note that seating is now a necessity for all workers in Great Britain.

Adequate ventilation and thermal standards for the comfort of the worker help to increase production, make him (or her) more comfortable and keep him in better health. Ventilation is an important factor in the prevention of pneumonokoniosis in coal miners.

Sweating, with salt and water loss, is an important physiological aspect to be considered. Not only is this found in the deep mines, in the stokeholds of ships at sea and in many other industries, but it is also frequently found amongst farm workers in Australia.

Noise and vibration are a cause of distraction affecting the health and well-being of the worker.

Adequate lighting, both natural and artificial, is a necessity for the worker's safety; the building should be brightly painted with the various pipes carrying steam, hot and cold water, chemicals *et cetera* painted different colours, and these colours should be standard to enhance the safety factor further.

The importance of preventing the pollution of the atmosphere at the place of work cannot be over-emphasized. Dust estimation and its control are of the utmost importance.

Finally, adequate hygienic provisions, such as the prevention of overcrowding and sanitary and washing accommodation, with sufficient provision for the drying of clothes, are an integral part in the welfare of the worker. Too often there is a complete lack of interest in these most important hygienic conditions on the part of the management.

Industrial Accidents and Disease.

Industrial accidents are a huge drain on manpower and a greater drain on the economics of a nation. Not only are there the huge number of cases[1] that are reported to the insurance companies under the *Workers' Compensation Act*, but there are those infinitely greater number of minor accidents and illnesses that do not even reach the records of the insurance companies. Anything that can be done to reduce the incidence of these accidents and illnesses is just a simple duty of the management to their employees.

It is no use telling a worker that a particular machine is dangerous. The employer must provide the conditions and equipment for the safety of the worker. Sir Thomas Legge stated in 1934 in his now famous dictum: "If it is left for the worker to protect himself, you will always have accidents. If you can bring some influence to bear external to the worker (that is one over which he has no control) you will be successful, and if you cannot, and do not, you will never be wholly successful."

The *Factory Act* of Great Britain gives exemption to those factories with an industrial medical officer and allows first-aid boxes to be dispensed with, provided there is a central surgery within the factory itself. If all injured persons even with only minor cuts or abrasions are required to attend and are given efficient treatment under aseptic conditions in a well equipped casualty room, staffed by a trained nursing staff or by trained orderlies under the supervision of an industrial medical officer, it can do nothing else but lessen the high incidence of those accidents or diseases which eventually reach the stage of requiring more prolonged treatment. How much better is this, and what an advancement on the scene so often seen in first-aid rooms where wounds are treated by so-called first-aid men, with dirty hands, and with dirty utensils, in dirty surroundings!

The prevention of sepsis is a major problem in industry. Gissane, of Birmingham, has developed a "no touch technique" in the handling of wounds. Wyers, at May and Baker's, sutures lacerated fingers *et cetera*, and after the application of a sterile "Optulle" dressing, encloses the wound with a "Gypsona" bandage, and the worker returns to his work with adequate protection to the wound. I have personally applied this treatment to shearers with quite deep lacerations to their arms, and they have been able to carry on their work without any loss to their daily

[1] The following are the latest figures in respect to the number of workers' compensation claims made in *New South Wales* during the past three years: 1948-1949, 142,298; 1949-1950, 142,879; 1950-1951, 141,492; total for three years, 426,669.

tally. The regular inspection of workers at their work can be a major weapon to lessen the high incidence of accidents and disease in industry. Minor injury is too great a cause of needless disability. Sepsis alone is a huge economic loss.

Occupational disease and disabilities are a further challenge to the industrial medical officer. Lead poisoning is no longer a hazard, in fact it has almost been wiped out as an industrial disease. The solvents, with their risk of toxic anæmia and toxic jaundice, are held in control. The dust diseases of miners will soon be no longer of any significance. Industrial dermatitis is still a major problem in itself and must be tackled with every weapon available. As the world progresses, new problems are presented. Just at this moment the new organic weedicides and insecticides are coming to Australia. We already have an answer to parathion (D.P.T.F.) in atropine, but as yet we have none for di-nitro-ortho-cresol (D.N.O.C.). This is used particularly as a selective weedicide in cereal crops. It has already killed nine agricultural workers in Great Britain since 1946, and it must be remembered that the spraying season lasts for only about two months each year. Should such a useful weedicide be discarded as being too dangerous? Or should it be a challenge to the industrial health team—the doctor to find an antidote, the chemist to produce a less toxic formula, the engineer to provide a safer method of spraying?

Rehabilitation and Resettlement.

The rehabilitation of a worker to full employment in his old job is of the utmost importance. The speed of his recovery depends to a very great extent on the efficiency of the first-aid treatment as well as on the efficient after-care. The rehabilitation of an injured worker should commence immediately the accident occurs or as soon as a disease becomes apparent. To ensure this it is necessary to enlist another member with the chemist, the engineer and the industrial medical officer. He is the general practitioner. It is also necessary to have the good will of the management. A good labour-management relationship with a high morale amongst the workers themselves is of the greatest importance. Here industry itself can contribute greatly towards this progress in social medicine. In a country such as ours where employees of each firm are small in number, group industrial rehabilitation centres could be based on the local hospitals and supported by local industries, by governmental agencies and by the general practitioner.

If the person has been so disabled as to prevent him returning to his previous employment, every effort should be made to retrain him so that he can obtain resettlement with full employment in another job that is compatible with his disability.

The test in every case is whether the injury or condition is a substantial handicap in getting or keeping employment in competition with others who are not disabled. If an injured or disabled worker can be trained or fitted for jobs within his capabilities and can be assured on this score, it is indeed half the cure, for it dispels the mistaken idea that a disabled man cannot tackle life on equal terms with his fellows.

In closing, I quote Lloyd Davis, who states:

> There is no man, woman or child in whom the torch of self respect cannot be lit. Such a process is not quick and is full of setbacks but treatment as human equals, regular work and a wage (which means food, good clothes and warmth) have slowly re-established many individuals in the community.

Conclusion.

This paper has been only a very short summary of the modern conception of industrial medicine. To those of you who may think it is idealistic, I would quote from an article on "The Work of the International Labour Organization in Occupational Health", in the *British Journal of Industrial Medicine*, October, 1951; in this Grut states:

> The scope of occupational health has changed during the time in which the I.L.O. has been active. The activities are at present not limited to prevention of hazards by prohibition or the drawing up of lists of such hazards, nor to payment of compensation for disablement. Occupational health aims at the promotion and maintenance of the highest degree of physical, mental, and social well-being of workers in all occupations.

If my paper has given rise to any interest, as I hope it has, or if it has whetted the appetite for a further talk, perhaps on some single aspect, I shall be only too pleased to present this at a later date.

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INTRAABDOMINAL USE OF PENICILLIN.

By F. H. SHAW AND G. T. PETERSON.

From the Department of Physiology, University of Melbourne.

IN that branch of therapeutics which deals with the administration of drugs, one is always conscious that the method of topical application is one of the least satisfactory. The two main factors which contribute to the unsatisfactory employment of this route of administration are, primarily, the uncertainty of absorption through an intact cell barrier, and hand in hand with this the pharmaceutical difficulty of obtaining a preparation which will render such even absorption a possibility.

This work was prompted by a desire to fill a definite need for a better type of penicillin powder for topical application as a dusting powder and for use as a safety factor after complicated abdominal surgery, especially when any infection may be already present, as after perforation.

The present types of powder available for this type of therapy are presented in Table I, with their advantages and disadvantages.

Our aim was to find such a diluent for penicillin as would give these powders a much wider field of application. Such a diluent should be completely absorbed without previous or intervening clumping, and should show complete absence of irritation. The absorption should be sufficiently slow to maintain satisfactory prolonged bacteriostatic medication.

The following simple test was devised to show these two desiderata—that is, freedom from clumping and irritation and prolonged bacteriostatic action. The abdomen of a cat, anæsthetized with pentobarbital (30 milligrammes per kilogram), was opened by an off mid-line incision and a quantity of the preparation under trial was placed in the peritoneal cavity. The wound was then stitched but reopened at intervals and the deposit of the preparation was inspected. At the same time a sample of peritoneal fluid was removed and tested for bacteriostatic activity. Later, when the ideal diluent had been discovered, the peritoneal cavity was not reopened, but samples of blood from the saphenous vein were taken into 3% sodium citrate solution and the penicillin level was determined. In experiments lasting about six hours the cat was kept

under the anæsthetic continuously. For experiments of twelve or more hours' duration the animal was allowed to recover and reanæsthetized before the sample of blood was removed. It was thought that this latter procedure more simulated natural conditions. After the first few preliminary experiments the amount of penicillin preparation used corresponded to 0·1 gramme of powder per kilogram. This represents approximately the amount one would expect to use in the case of human beings. The method used for the penicillin level was an adaptation of Fleming's original slide cell method. A virulent strain of *Streptococcus hæmolyticus* (N.Y.5, kindly supplied by the Department of Bacteriology, University of Melbourne) was grown on nutrient agar and subcultured for at least three or four consecutive days on nutrient broth before each assay.

TABLE I.

Preparation.	Advantages.	Disadvantages.
Penicillin - sulphanilamide powder.	Evidence of a synergism between the two components.	Sensitivity to sulphanilamide too common. As there is complete and rapid absorption from the site, careless use may lead to poisoning.
Penicillin in starch powder.	An inert absorbable diluent for surface application.	Difficult to guarantee sterility. Clumps in the peritoneal cavity.
Penicillin in lactose powder.	Inert readily absorbable diluent. Of particular advantage in ear, nose and throat work.	Very soluble, hence too quickly absorbed from abdominal packing.

One would have thought that the number of possible diluents would have been considerable; but in fact when one considers that the substance must be chemically inert, weakly soluble and capable of sterilization, and must possess a large molecule to lessen osmotic activity, one finds the choice very limited.

The following results are an indication of our approach to the final conclusion.

1. Starch powder (*Amylum Pulveratum*). This showed definite signs of clumping, and the centre of the bulk deposit was still dry many hours after insertion.

2. Sodium chloride (2%) and *Amylum Pulveratum* (98%). It was thought that as the salt dissolved, interstices filled with body fluid would be left, into which the starch could dissolve, clumping being thereby prevented. This hope was not fulfilled. Both these preparations were considered unsatisfactory, because it was thought that not only would the absorption be irregular or absent but the clumping might lead to irritation.

3. Lactose. This substance showed no clumping, but disappeared from the cavity within a few minutes, and one can assume that absorption would have been complete within the same period.

4. Lactose, glucose, calcium lactate and calcium gluconate in equal proportions. Small clumped masses were observed.

5. Calcium lactate. This compound remained in the cavity for two to three hours without apparent irritation, judged by vascular dilatation; but excessive formation of peritoneal fluid did suggest some possible degree of irritation.

6. Calcium lactate (48%), sodium chloride (2%) and lactose (50%). This seemed to offer little advantage over calcium lactate alone.

7. Lactose (50%), calcium gluconate (50%). This mixture showed no clumping and no irritation other than a slightly increased formation of peritoneal exudate, and slowly disappeared from the cavity over a period of five hours. It was obvious that something approaching the ideal preparation had now been reached, and we were ready to observe the rate of liberation of penicillin from such a powder.

By the selection of good quality samples of the lactose and of the calcium gluconate, it was possible to produce a powder of particle size large enough to prevent even a tendency to clump, and yet fine enough to permit ready insufflation. The required amounts of the components were intimately blended in a suitable shallow container, and

TABLE II.
Penicillin Content of Blood and Peritoneal Fluid.

Cat Number.	Material and Dosage.	Time After Insertion.	Penicillin Content. (Units per Millilitre.) Blood.	Peritoneal Fluid.
I	2 grammes of powder containing calcium penicillin 5000 units per gramme.	50 minutes.	0·145	—
		60 minutes.	—	0·20
		100 minutes.	>0·96	—
		105 minutes.	—	0·135
		165 minutes.	0·72	—
		170 minutes.	—	0·54
		250 minutes.	0·36	—
		255 minutes.	—	0·27
		290 minutes.	>0·36	—
		295 minutes.	—	0·54
II	1 gramme of same powder.	90 minutes.	0·32	—
		95 minutes.	—	0·21
		170 minutes.	0·36	—
		175 minutes.	—	0·42
		300 minutes.	0·36	—
		305 minutes.	—	0·72
		410 minutes.	0·72	—
		415 minutes.	—	2·64
III	1 gramme of same powder.	180 minutes.	>0·36	—
		185 minutes.	—	0·42
		300 minutes.	>0·21	—
		305 minutes.	—	0·36
		450 minutes.	>0·21	—
		455 minutes.	—	0·84
IV	0·1 gramme per kilogram of body weight of same powder.	330 minutes.	0·21	—
		335 minutes.	—	0·21
		535 minutes.	>0·21	—
		540 minutes.	—	0·42
		660 minutes.	>0·42	—
		665 minutes.	—	<0·105
V	0·1 gramme per kilogram of body weight of same powder.	270 minutes.	1·20	0·15
		540 minutes.	0·30	<0·075
		780 minutes.	0·30	Nil
VI	0·1 gramme per kilogram of body weight of same powder.	12 hours.	>0·06	—
		15 hours.	<0·12	—
		20 hours.	>0·06	—
VII	0·1 gramme per kilogram of body weight of powder containing 15,000 units of procaine penicillin per gramme.	17 hours.	0·19	—
		19 hours.	0·09	—
		21 hours.	>0·05	—
VIII	0·1 gramme per kilogram of body weight of powder containing 15,000 units of procaine penicillin per gramme.	17 hours.	<0·12	—
		20 hours.	<0·12	—
		22 hours.	0·12	—
IX	0·1 gramme per kilogram of body weight of powder containing 15,000 units of procaine penicillin per gramme.	17 hours.	<0·12	—
		20 hours.	0·12	—
		23 hours.	0·12	—
X	0·1 gramme per kilogram of body weight of powder containing 15,000 units of procaine penicillin per gramme.	17 hours.	>0·12	—
		20 hours.	0·12	—
		24 hours.	>0·06	—
XI	0·1 gramme per kilogram of body weight of powder containing 7500 units per gramme of procaine penicillin and 7500 units per gramme of calcium penicillin.	6 hours.	0·18	—
		7½ hours.	<0·24	—
		24 hours.	>0·12	—
		26 hours.	0·18	—
XII	0·1 gramme per kilogram of body weight of powder containing 7500 units per gramme of procaine penicillin and 7500 units per gramme of calcium penicillin.	6 hours.	>0·06	—
		8 hours.	0·18	—
		23 hours.	>0·12	—
		27½ hours.	<0·12	—

after preliminary drying were dry air sterilized at 150° C. for one hour. The penicillin was then added aseptically and blended into the sterilized diluent. Two types of penicillin were used in these experiments: (*a*) calcium penicillin, 1350 units per milligramme, (*b*) procaine penicillin, 1000 units per milligramme. The concentration of penicillin is expressed as units per gramme of powder. The results obtained are shown in Table II.

The results of these experiments may be considered to be very satisfactory. For a period of twelve hours after the penicillin preparation had been placed in the abdominal cavity, a concentration of 0·4 unit per millilitre is to be found in the blood and at least 0·1 unit per millilitre in the peritoneal fluid. It should be pointed out that the sampling collection of the peritoneal fluid may not be representative, and the figures are to be interpreted with caution. Those for the blood reach a reasonable degree of accuracy. At the twenty-four-hour interval the blood penicillin level may be as high as 0·1 unit per millilitre and not less than 0·05 unit per millilitre. The degree of bacteriostatic activity reached may be judged from the figures shown in Table III.

TABLE III.

Infective Organism.	Lethal Concentration. (Units per Millilitre.)
Streptococcus pyogenes ..	0·012
Pneumococcus	0·04
Staphylococcus aureus ..	0·04 to 0·1
Streptococcus faecalis ..	3·0 to 6·0

Finally it is interesting to note that 5000 units per gramme of calcium penicillin produced high initial blood levels, whilst 15,000 units per gramme of procaine penicillin in the same diluent gave twice the blood level at twenty hours and a satisfactory figure at the end of twenty-four hours. It was therefore suggested that a diluent consisting of 7500 units of calcium penicillin and 7500 units per gramme of procaine penicillin would give a high initial level whilst at the same time retaining the benefit of the long duration characteristic of the procaine penicillin. This was shown to be so (cats XI and XII).

Summary.

The production of a suitable diluent for penicillin for topical use is described.

Animal tests reveal a penicillin blood level of 0·4 unit per millilitre, seven hours after it had been placed in the abdominal cavity, and 0·05 unit per millilitre at an interval of twenty-four hours.

Acknowledgements.

We wish to express our appreciation to Sigma Company Limited for the generous supply of lactose-calcium gluconate-penicillin powder ("Duocillin") and other materials used in this survey. The assays were carried out in the Sigma laboratories by Dr. Juozapavicius. Our thanks are also due to Mr. J. D. Meares, who helped in the later stages with the animal experiments.

Reports of Cases.

FIVE CASES OF PARALYTIC POLIOMYELITIS IN A FAMILY.

By BERTRAM P. MCCLOSKEY, M.D. (Melbourne),
Poliomyelitis Officer, State Health Department, Melbourne.

FIVE children, three girls and two boys, the only children of a family living on a fruit block in an irrigation district 350 miles from Melbourne, developed paralytic poliomyelitis during June, 1951. The father gave a history of a short illness a fortnight before the onset in the first child; the mother, the only other resident in the household, gave no history of illness.

The Father's Illness.

The father developed headache, cough and general malaise on May 30, 1951. He did not go to bed, but discontinued working on the property except for a few small essential tasks around the house. He recovered completely in a few days and has since remained well.

First Child.

The first child to become ill, a boy, aged one year and eleven months, developed fever and anorexia and was generally "out of sorts" on June 11. Late in the afternoon he commenced vomiting at intervals. On June 12 the child was restless and sweating profusely. A course of sulphadiazine therapy was commenced. That night at about midnight the child's parents noticed, after the child had been given sulphadiazine, that he had lost his ability to cry. Also, although he appeared to be trying to vomit, he did not; his father said that he looked as though he had something in his throat choking him, and that his lips were blue. He was taken to hospital, and during transit it was noticed that his limbs were limp and powerless and that he was unable to sit up. In hospital he was given oxygen, but died at 11 a.m. on June 13. No post-mortem studies were made.

Second Child.

On June 16, his sister, a girl, aged twelve years and nine months, complained of abdominal pain associated with tenderness in the right iliac fossa. She was slightly feverish. On June 17 the pain shifted to the back, particularly to the region between the shoulders. The fever persisted and a course of sulphadiazine therapy was commenced. That afternoon she complained of severe headache, and later in the day developed nausea and vomiting. On June 18 she was admitted to hospital. On June 20 she was still febrile, and weakness of the left arm developed. This paralysis extended and her breathing became rapid and shallow. That evening she had paralysis of both arms and difficulty in respiration. A tracheotomy was performed and the child's trachea sucked out. She was then put into a respirator and appeared to be settling down. Next day, June 21, she suddenly collapsed in the respirator and died. No post-mortem studies were made.

Third Child.

Also on June 16 another sister, aged seven years and four months, became ill with headache and sore throat. Next day, June 17, she developed neck stiffness and fever and was admitted to hospital. Lumbar puncture was performed on June 18 and the cerebro-spinal fluid was found to contain 200 cells per cubic millimetre, the majority lymphocytes. The protein content of the cerebro-spinal fluid was not estimated. Weakness of the right arm and of the abdominal muscles appeared during the next few days, but the paralysis did not extend further.

Two weeks after the onset the child still had weakness of the right arm and asymmetrical weakness of the abdominal muscles. Some weakness of the right calf was found later when she commenced to stand, so treatment in recumbency was continued. Eight months after the onset only slight weakness of the right *serratus anterior* and right calf remained.

Fourth Child.

On June 22 a brother, aged three years and four months, woke at 4 a.m. and commenced to vomit; this continued intermittently for about four hours. He was "grizzly" and "out of sorts" all that day. No definite abnormality was detected on examination by the family doctor, but in view of the illnesses in the rest of the family he was transported to hospital that evening. He had a slight fever and some soreness in his leg for a day or so, but then appeared to recover. On June 30 he was noticed to have a limp when walking, favouring his right leg. He also was

treated in recumbency for some months. Eight months after the onset no residual paralysis could be detected.

Fifth Child.

On June 23 a sister, aged nine years and four months, woke up "grizzly", flushed and feverish, and with some headache and anorexia. She was immediately taken to hospital. On June 25 moderately severe weakness of the left arm and of the neck muscles developed. On June 30 she had generalized weakness of the left arm affecting particularly the long finger flexors and intrinsic muscles of the hand, weakness of the neck muscles, and some weakness of the left *tibialis anterior*. Eight months after the onset great improvement had occurred, but she still had slight weakness of the left hand.

Diagnosis.

No post-mortem studies or attempts at virus isolation from fæces were made, but serum from the surviving patients and the parents was collected and is being stored pending the development of serological tests in this State.

Lumbar puncture was performed on one child only; in this case pleocytosis was present, the majority of cells being lymphocytes. No differential count was made, and the cerebro-spinal fluid protein content was not determined.

In the absence of laboratory evidence the diagnosis in these cases rests entirely on clinical grounds.

The differential diagnosis of acute poliomyelitis involves a consideration of many conditions, but in these particular cases glandular fever, brucellosis, leptospirosis, encephalitis, lymphocytic choriomeningitis, tuberculous meningitis and diphtheria need not be seriously considered, as none of these infections cause the clinical features seen in all five cases. Polyneuritis, either infectious or toxic, requires further consideration.

Infectious polyneuritis usually causes symmetrical flaccid paralysis, symmetrical sensory changes and a high protein content of the cerebro-spinal fluid without increase of cells; but in some cases sensory changes may be absent. In the cases discussed above the paralysis was asymmetrical, and examination of the cerebro-spinal fluid of the only patient from whom a specimen was examined revealed pleocytosis (200 cells per millilitre).

Lead poisoning can be excluded because of the absence of symptoms of encephalitis or encephalopathy, of muscular incoordination, of articular pains, of anæmia and of a lead line on the gums. Also the asymmetrical and variable muscle paralysis, the acute onset and short course of the illness and fever do not fit in with a diagnosis of lead poisoning.

Tri-ortho-cresyl phosphate can cause an illness clinically similar to poliomyelitis, but in this family no history of contact with this substance or with similar substances could be obtained. No fertilizers, sprays or weed killers were being used at the time of or during the period immediately preceding, the onset of illness in these children.

Discussion.

Shortly before the onset of ilness in this family there had been an outbreak of poliomyelitis in a nearby migrant centre, and cases of poliomyelitis occurred on nearby properties both before and after the family episode.

The father was an indirect contact—through an adult male working on a friend's property—of a girl, aged two years and five months, a member of a family of seven living in a shack on the banks of the nearby river, who became ill on April 29, 1951, and developed weakness of the right leg two days later. The father made contact with this man, and the family employing him, on May 16—that is, fourteen days before the onset of his illness. On May 27 one of the members of the family employing this worker also developed a febrile illness lasting only a few days. It appears possible that this man could have been a healthy carrier of poliomyelitis virus.

Three of the children (the second, third and fifth) were school children. All the school children in the area had been Mantoux tested (1 in 1000 old tuberculin in the left forearm) early in June, the three school children in this family on June 4.

It is of interest that all three had arm paralysis, two ipsilateral and two contralateral extremities being involved, whereas the younger children, not similarly inoculated, did not have involvement of the arms (first child bulbar paralysis, fourth child right leg paralysis). It is also of interest that, despite a widespread inoculation programme conducted in the district during this outbreak of poliomyelitis, no other cases of paralytic poliomyelitis with a history of the performance of a Mantoux test within one month of the onset were reported.

A diagnosis of poliomyelitis in these familial cases appears convincing, and the episode may be regarded as an unusual feature in an outbreak of poliomyelitis in the district. The occurrence of four cases of poliomyelitis (two paralytic and two non-paralytic) in a family (three brothers, and a first cousin) has recently been reported (Kennedy, 1951) and the occurrence of familial poliomyelitis reviewed (editorial, *The Lancet*, 1951). The occurrence of five paralytic cases in the same family is exceptional.

Acknowledgements.

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DEXTRAN IN BLACKWATER FEVER.

By CARL E. M. GUNTHER, M.D., B.S., D.T.M. (Sydney), D.T.M. & H. (England),

Field Medical Officer, Bulolo Gold Dredging Limited, Bulolo, Territory of Papua–New Guinea,

AND

H. B. BRUCE, M.B., Ch.M. (Sydney),

Senior Medical Officer, Government Hospital, Lae, Territory of Papua–New Guinea.

Clinical Record.

THE patient, a white man, aged fifty-two years, has lived in New Guinea for over twenty years, during which time he has had numerous attacks of malarial fever; the last (his own diagnosis) was possibly in June, 1951. He treated himself then with a quantity of quinine. Since that time he had taken quinine and "Paludrine" irregularly and inadequately as a prophylactic measure. On April 6, 1952, feeling off colour, he took 10 grains of quinine and 10 grains of aspirin, and repeated the dose of quinine in the afternoon. In the evening he felt very weak and noticed that his urine was dark. He was then admitted to Lae Hospital. His urine was a very dark red and contained large amounts of oxyhæmoglobin but no methæmoglobin or methæmalbumin, and no red cells or amorphous deposits.[1] Accurate blood examination was impossible, as his blood promptly autohæmolysed on the slide. No malaria parasites were seen.

By the next morning his temperature was 104·2° F. (40·1° C.), his pulse rate was 104 per minute, and his respirations numbered 56 per minute. His condition became steadily worse during the next two days; on April 8 (the third day of his illness) his hæmoglobin value was below 20% and he still had gross oxyhæmoglobinuria, though he was passing only small amounts of urine. He could retain

[1] This type of blackwater fever, though not uncommon in other parts of the world, is very rare in New Guinea; as far as we know, this is the first time that it has been reported here.

no fluids, and had watery diarrhœa. He was intensely jaundiced. During the morning he was given 600 millilitres of glucose-saline intravenously (more could not be given because he was very restless and irrational at times) without any apparent effect. His general condition was so bad and was deteriorating so rapidly that it seemed unlikely that he could be kept alive until blood transfusions could be given. There was still autohæmolysis of his red blood cells *in vitro*. At 3.45 p.m. he was given 500 millilitres of 6% dextran solution intravenously, with dramatic effect. His general condition promptly improved in every way; his respirations dropped to 40 per minute and became much less laboured; his pulse rate dropped to 100 per minute and the beats became much stronger and steadier; within an hour he came to present a totally different picture. After the dextran he was given, intravenously, 500 millilitres of plasma, and then a second flask of 500 millilitres of 6% dextran solution during the night. By the morning of April 9 he was quiet and cooperative and was taking plenty of fluids; his pulse and respirations had further improved in quality; and his urine was copious and much paler in colour. But he had some ascites and moist crepitations at both lung bases, though there was no œdema of the ankles or scrotum. By 11 a.m. he passed urine which was clear of hæmoglobin, and his red blood cells showed no autohæmolysis *in vitro*. Cross-matching of donors was commenced, but because of the fluid in his lungs and abdomen it was decided to postpone transfusions until the next morning; his condition was so satisfactory, even though his red blood cells totalled only 1,800,000 per cubic millimetre, that it was felt safe to do this. Transfusions of whole blood and parenteral iron and liver therapy were commenced on April 10 and he improved rapidly. By April 14 his hæmoglobin value was 51% and his red blood cells numbered 2,900,000 per cubic millimetre. On April 14 also antimalarial treatment with "Nivaquin" was commenced. By April 24 his hæmoglobin value was 51% and he was discharged from hospital on April 25. He has been well since.

Discussion.

This patient's condition was so desperate that it seemed to all who saw him that he could not possibly survive until transfusions could be given. The stimulating effect of dextran was most pronounced, although only two flasks were available and we had to eke it out with plasma. We do not, of course, attribute the cessation of hæmolysis to dextran, but as far as this patient is concerned we regard dextran as being equally as good as plasma in maintaining life until transfusions were possible; and dextran can be stored and used in circumstances in which plasma would be unavailable. Moreover, the giving of whole blood while hæmolysis is still occurring is usually risky, and often disastrous, but dextran was perfectly safe. Finally, although the manufacturers issue a warning that blood typing should be carried out before dextran is given, this was not possible here, and there was no difficulty in carrying out cross-matching after 1000 millilitres of dextran (6%) had been given.

Summary.

These notes describe the effect of intravenous therapy with dextran (a synthetic polysaccharide) on a patient with severe blackwater fever.

Reviews.

THEORY AND PRACTICE OF NURSING.

"THEORY AND PRACTICE OF NURSING", by M. A. Gullan, S.R.N., is a useful supplement to the general training of the student nurse.[1] The book is eminently suitable as a reference book for the senior nurse, but would require a great deal of amplification if it is to be used as a text-book for general training.

The text would be greatly enhanced by the inclusion of more diagrams, for example, a diagram for tidal drainage apparatus. The diagram for injection sites is good, but the one of digestion is complicated and difficult to follow.

In the chapter on surgical technique more might be said about the care of hands, method of scrubbing and use of sterile towels. In regard to surgical dressings no mention is made of "mask technique" nor of the importance of dust-free atmosphere when dressing a wound.

The chapters dealing with physiology are good, and the bold type makes it easy to pick out important facts. This is a section of nursing instruction which could well be amplified.

In the chapter dealing with the administration of drugs there is still no mention, nor even a definition of, a poison. One wonders why. The most notable and pleasing additions to the work are to be found in the section allocated to acute infections or contagious diseases.

"Hints on Private Nursing" are most valuable, and for this chapter alone the book is well worth while.

[1] "Theory and Practice of Nursing", by M. A. Gullan; Sixth Edition; 1952. London: H. K. Lewis and Company, Limited. 9" × 6", pp. 254, with nine illustrations. Price: 18s.

PSYCHIATRY AND GENERAL PRACTICE.

IN "Psychiatry in General Practice" C. A. H. Watts and B. M. Watts set out the results of their experience in a practice of some 8000 patients, amongst whom about 200 new cases of psychiatric illness are seen every year.[1] Neither author, one of whom is an obstetrician, has a special psychiatric qualification, but interest in psychiatry and contacts with psychiatrists whilst on war service led to their paying special attention to this aspect of practice. One of the objects of the book is to show how much can be done with emotionally disturbed patients, without undue expenditure of time. The authors estimate that the average time spent on a neurotic is three hours (about four sessions of forty-five minutes each), the same as for an average obstetric case from the first examination to the final post-natal review, and including one hour for the confinement. In a three-year period they saw a yearly average of 125 patients with anxiety states, 48 with endogenous depression, 14 with hysteria, three with schizophrenia, and two sufferers from compensation neurosis. All cases were acute. In addition there was a yearly average of some 40 patients with chronic conditions—anxieties, depressions, schizophrenia, defectiveness and senility. The authors estimate that 40% of the patients with anxiety and 60% of those with endogenous depressions made a good recovery, while some 23% were referred to a specialist, became "chronic" or drifted away out of notice. At the close of their chapter on their statistics the authors state that "there is a danger that we may become finger-posts directing our patients to the most appropriate specialist. . . Here in psychiatry is a new sphere of work for our attention. It is essentially work for general practitioners and a more rational outlook on the problem is long overdue". The methods adopted in treatment, history-taking, superficial exploration, types of cases, neuroses in childhood, psychiatric conditions in the aged, sex instruction and marital guidance, and prophylactic psychiatry are discussed in some dozen chapters. This work, which contains a great deal of wisdom in its 200-odd pages, should interest particularly those who are embarking on general practice.

PHYSICAL MEDICINE IN GENERAL PRACTICE.

"PHYSICAL MEDICINE IN GENERAL PRACTICE", edited by William Bierman and Sidney Licht,[2] has been written by 22 contributors, and is divided into two parts, dealing respectively with methods used and with clinical applications. That some sections of this branch of medical science are now almost specialities in themselves is an indication of its rapid expansion. Owing to the rapid strides made in recent years the editors, no doubt, feel that a new and third edition is required, for they have omitted much of the previous material and added much that is new. One would

[1] "Psychiatry in General Practice", by C. A. H. Watts, M.D. (Durh.), D.Obst., R.C.O.G., and B. M. Watts, M.B., B.S. (Durh.), with a foreword by J. D. Wyndham Pearce, M.D., F.R.C.P.E., D.P.M.; 1952. London: J. and A. Churchill, Limited. 8½" × 5½", pp. 236. Price: 12s. 6d.

[2] "Physical Medicine in General Practice", edited by William Bierman, M.D., and Sidney Licht, M.D.; Third Edition; 1952. New York: Paul B. Hoeber, Incorporated. 9½" × 6½", pp. 816, with 234 text figures. Price: $12.50.

expect a book written under these conditions to be of the high standard it is. Its 798 pages contain valuable information for the specialist in physical medicine as well as the general practitioner for whom it is apparently written. Thus we find that the sections on the relatively newer microwave and ultrasonics are well up to date. We note that the Americans along with the British are more cautious than Continental authors in assessing the value of ultrasonics.

Sufficient theoretical and scientific data have been given for a book of this nature without burdening the busy practitioner too much. There is overlapping of certain sections with repetition of some points, but this is perhaps a good feature and no doubt difficult to eliminate entirely when many contribute to the same book on closely related sections of the same subject. The many diagrams and figures are all excellent and adequately demonstrate what is intended of them. The book is well set up with clear print and easily read, and is perhaps one of the best on the subject to have been published for some time. It is one that could be highly recommended to those interested in this subject.

LUNG ABSCESS.

THERE are three important questions for the critic to answer about any work: (*a*) What is the author aiming to tell us? (*b*) Was it worth doing? (*c*) Has it been well done? In his book "Lung Abscess" R. C. Brock[1] aims to give us the essentials of this dreadful condition; it was certainly worth doing, and on the whole it has been done remarkably well. The publishers also deserve praise for this excellent production. After this general assessment it remains to review some of the important points. In the chapter on anatomy the new international nomenclature of the bronchopulmonary segments is used, and the importance of accurate localization of the abscess is rightly emphasized. The second chapter is on pathology, and it is pointed out that the commonest mode of infection is by the inhalation of septic matter. Those who see many patients with lung abscess know this, but there are still many doctors who are unaware of the dangers attending unskilful management of dental and tonsillar operations. Slough retained in an abscess cavity demands prompt operation; in this country a similar clinical condition results from the retention of hydatid membrane after incomplete expectoration of a ruptured hydatid cyst. Succeeding chapters are devoted to anaerobic, aerobic, staphylococcal and Friedländer abscesses. Another chapter deals with suppuration associated with cancer of the lung; this combination should be suspected in any patient with an abscess of unknown origin, especially in the latter half of life. Treatment is discussed in the last chapter, and this is followed by a list of references and a good index. Special attention should be given to Brock's statement that the course of any lung abscess is not satisfactory unless there is progressive radiological and clinical improvement.

GASTRO-INTESTINAL X-RAY DIAGNOSIS.

"GASTROINTESTINAL X-RAY DIAGNOSIS", by Max Ritvo and I. A. Shauffer, of the University of Harvard,[2] is a large book of 814 pages, with an index and an extensive bibliography at the end of each subject. The authors consider that accuracy in diagnosis depends on the patience, training, experience and skill of the radiologist. It is claimed that 90% of lesions in the gastro-intestinal tract can be demonstrated and 95% in the cases of gall-bladder diseases. Clinical knowledge of the case is a necessity, and close cooperation must exist between the clinician and radiologist. The authors recommend use of a watery suspension of barium sulphate without the addition of mucilage or buttermilk. Fluoroscopy is regarded as essential and must be done by an expert. Care must be taken to prevent damage to the patient and operator. The anatomy and embryology of each organ are described in detail before the authors proceed to describe the methods of examination and the points to look for. An interesting chapter deals with the examination of the small intestine. This is still a difficult field as the superimposition of the various coils causes confusion; it is also difficult to get a continuous stream of opaque material to keep the coils filled. The use of small amounts of barium sulphate given at fifteen minute intervals is found of value. Another method is for the patient to swallow six ounces of the barium mixture without stopping; examinations are then made at fifteen minute intervals. Every conceivable lesion of the gastro-intestinal tract is described and well illustrated. Methods of examination of the gall-bladder and liver are covered, and some interesting films are included. Calcified gall-bladders are looked on as being due to low-grade inflammatory changes. Several cases of calculi in the bile ducts are reported.

The authors point out the difficulty in demonstrating lesions of the pancreas, spleen and peritoneum, but they consider that investigations of these organs are well worth while. Several illustrations of pancreatic calculi are included. A chapter on the abdomen generally is interesting, and it is recommended that a preliminary "scout" film of the abdomen should be made in every case of gastro-intestinal investigation. Such films frequently show gall-stones, calcified glands and tumours of the pelvis, old hydatid cysts and dermoids. It is also possible to show gas-filled coils in cases of obstruction.

Altogether this is an excellent work and well worth a place in the radiologist's library.

LUMBAR DISK LESIONS.

EVERY practitioner who treats patients complaining of low back pain and sciatica should read "Lumbar Disc Lesions", by J. R. Armstrong.[1] Other causes of such pain are briefly considered under differential diagnosis. The author's opinions are based upon pathology and extensive experience, and, as stated in the foreword by H. Osmond-Clarke, they portray "for the most part the views of contemporary British orthopædic surgeons". The book is easy to read and clearly illustrated. The author stresses the fact that the majority of patients recover with conservative treatment, mainly rest and immobilization. The general practitioner will find in this book how to treat his patients and when to seek specialist advice, and the specialist will find much to interest him. There is little to criticize. The existence of arthritis in the pseudoarthrosis in Plate II is unconvincing. This is a minor matter, but there is one major inaccuracy in the text. The author is not correct in stating that there is always impairment of movement of the lumbar spine and an increase of sedimentation rate in the early stages of ankylosing spondylitis. These signs are often absent in the early stages. Plates 12A and 12B are X-ray films of a patient with advanced ankylosing spondylitis and would be better replaced by examples of this condition in its earlier stages when diagnosis is so important.

ELECTROCARDIOGRAPHY.

THE foreword by Frank N. Wilson to Eugene Lepeschkin's book on electrocardiography is a well-merited commendation.[3] The qualifications of the author for his colossal task are greatly enhanced by his ability to read so many foreign articles in the original. Colossal it must be admitted to be, for he aims at creating a comprehensive reference book having allusion to practically all the literature on the subject which has appeared since 1933 when Wilson introduced multiple precordial leads. His 9999 references indicate the amount of work involved in reading alone; but he has not merely tabulated the work of others, for he has woven into the fabric the results of his own study and experience, which have enabled him to assess and assemble the material in an orderly and connected fashion. His system of indices and cross-references, in which he uses paragraph numbers instead of page numbers, is most helpful in such a volume as this, which is essentially a book of reference.

[1] "Lung Abscess", by R. C. Brock, M.S., F.R.C.S., F.A.C.S.; 1952. Oxford: Blackwell Scientific Publications. 10" × 7½", pp. 204, with 60 illustrations. Price: 35s.

[2] "Gastrointestinal X-Ray Diagnosis", by Max Ritvo, M.D., and I. A. Shauffer, M.D.; 1952. Philadelphia: Lea and Febiger. Sydney: Angus and Robertson, Limited. 10" × 7½", pp. 838, with 470 illustrations, two in colour. Price: £10 15s.

[1] "Lumbar Disc Lesions: Pathogenesis and Treatment of Low Back Pain and Sciatica", by J. R. Armstrong, M.D., M.Ch., F.R.C.S., with a foreword by H. Osmond-Clarke, C.B.E., F.R.C.S.; 1952. Edinburgh and London: E. and S. Livingstone, Limited. 10" × 7", pp. 236, with 56 illustrations, a few in colour. Price: 42s.

[2] "Modern Electrocardiography: The P-Q-R-S-T-U Complex", by Eugene Lepeschkin, M.D., with a foreword by Frank N. Wilson, M.D.; Volume I; 1951. Baltimore: The Williams and Wilkins Company. Sydney: Angus and Robertson, Limited. 10" × 7½", pp. 612, with 91 illustrations. Price: £6 9s.

The author deals at length with the various types of electrocardiographs, their merits and demerits, and those artefacts which are apt to trap the unwary. He then discusses the leads and their laws and deals with electrical activity of heart muscle. After considering the normal electrocardiogram he reviews the influence of physiological factors on the tracing. Subsequently the various alterations due to cardiac damage are recorded and discussed.

This book not only contains a vast amount of information, but is set out in such a way as to facilitate the search for knowledge on any particular problem. The book is assured of its place as the reference book of the period, and as such is essential to anyone making a real study of this subject.

TOXÆMIAS OF PREGNANCY.

THE second edition of Dieckmann's "The Toxæmias of Pregnancy"[1] follows the pattern of the first edition in presenting a comprehensive review of all aspects of this yet unsolved problem in obstetrics. It is essentially a book of reference and must be of great value to the practising obstetrician and teacher: the general practitioner might find the essential specific points of prevention, diagnosis and treatment difficult to find, although present. The edition has gone to press too early for the recording of the work done at the Women's Hospital, Sydney—the most recent reference being to Hipsley's article in 1949. An eminent authority like the author should note that New South Wales is not a city, as listed in Table 2 on page 38, and Sydney is incorrectly spelt in tables on page 39. The book is very well produced, on good quality paper with adequate illustrations. The clinical aspects of the toxæmias of pregnancy are particularly well covered in the section devoted to them. The chapter on "pharmacodynamics" contains excellent advice on sedative and eliminative drugs indicated in eclampsia, with special emphasis on hypertonic dextrose solution and its modern uses in oliguria. It is fitting that this book should conclude with a chapter on prenatal supervision, for, after all, this is the crux of all toxæmic care.

MODERN TRENDS IN GASTRO-ENTEROLOGY.

"MODERN TRENDS IN GASTRO-ENTEROLOGY", edited by F. Avery Jones, represents the first combined attempt in the United Kingdom to present the views of its physiologists, physicians and surgeons on this specialty.[2] It is not a textbook of gastro-enterology. The editor has chosen to select subjects that have seen development and expansion since the last war and in which progress has and is being made in ætiology, diagnosis and treatment. These subjects are dealt with by experts in their field, who have themselves added to existing knowledge. It is, therefore, with considerable pleasure that one finds five Australian contributors, R. K. Doig and I. J. Wood, R. Andrew, F. D. Stephens, and W. E. King. The article by Professor G. W. Pickering on abdominal pain makes several references to the work of V. J. Kinsella.

The book is admirably produced by Butterworth's Medical Publications in its Modern Trends Series and can be recommended as a true representation of British medical opinion on almost all aspects of gastro-enterology. The articles have commendable clarity. Especially welcome are those by physiologists dealing with gastric secretion, fat absorption, gastro-intestinal motility and abdominal pain. Radiologists contribute two articles dealing with œsophageal radiology and radiology of the small intestine in steatorrhœa, and there is a section on fluids and electrolytes in gastro-enterology. Reflecting the modern interest in disorders affecting the œsophagus, considerable space is devoted to articles relating to this organ, which include a fine contribution on diaphragmatic hernia in which warm recognition is given to P. R. Allison, of Leeds. As one would expect, peptic ulcer is discussed fully in many interesting aspects including endemiology, ætiology, treatment and prognosis, hæmatemesis and the place of surgery. Herman Taylor writes the article on carcinoma of the stomach and takes the opportunity of praising his gastroscope as compared with the Schindler instrument. One would not entirely agree with his dogmatism. Disorders of the liver are confined to articles on virus hepatitis and cirrhosis, which are admirably covered by Sherlock, and there are comprehensive accounts of jaundice and portal hypertension. The concluding chapter is a fine account of the modern ideas on pancreatitis.

This book should prove of great value to all those interested in disease affecting the gastro-intestinal system and reflects credit on British medicine in general. One hopes that it will be revised regularly so as to incorporate those trends which will certainly appear in the future. Finally one would pay tribute to the editor for bringing such a book to fruition. He himself has stimulated the development of gastro-enterology in Britain in no small measure.

[1] "The Toxæmias of Pregnancy", by William J. Dieckmann, S.B., M.D.; Second Edition; 1952. St. Louis: The C. V. Mosby Company. Melbourne: W. Ramsay (Surgical) Proprietary, Limited. 10" × 7", pp. 710, with 85 illustrations and one colour plate. Price: £7 12s. 3d.

[2] "Modern Trends in Gastro-Enterology", edited by F. Avery Jones, M.D., F.R.C.P.; 1952. London: Butterworth and Company (Publishers), Limited. 10" × 7", pp. 844, with 275 illustrations. Price: £7 7s. 6d.

Books Received.

[The mention of a book in this column does not imply that no review will appear in a subsequent issue.]

"Essentials for Final Examinations in Medicine", by John de Swiet, M.D. (London), M.R.C.P.; Fourth Edition; 1952. London: J. and A. Churchill, Limited. 7½" × 5", pp. 190. Price: 12s. 6d.

An aid to rapid revision before final examinations.

"Physician's Handbook", by Marcus A. Krupp, M.D., Norman J. Sweet, M.D., Ernest Jawetz, Ph.D., M.D., and Charles D Armstrong, M.D.; Seventh Edition; 1952. Los Altos, California: University Medical Publishers. 7½" × 4½", pp. 384, with about 40 text figures. Price: $2.50.

The last edition was issued in 1950.

"Help Yourself Get Well: A Guide for TB Patients and their Families", by Marjorie McDonald Pyle, M.D., with a foreword by H. Corwin Hinshaw, M.D.; 1952. London: William Heinemann (Medical Books), Limited. 7½" × 5", pp. 158. Price: 12s. 6d.

Written by a doctor with experience as a patient.

"Diseases of the Ear, Nose and Throat: Principles and Practice of Otorhinolaryngology, Clinical Technics and Procedures", by Francis L. Lederer, B.Sc., M.D., F.A.C.S.; Sixth Edition; 1952. Philadelphia: F. A. Davis Company. Sydney: Angus and Robertson, Limited. 10½" × 7", pp. 1450, with 979 illustrations, 20 in colour. Price: £10 15s.

Intended for teachers and specialists, as well as students and general practitioners.

"History of the Second World War: United Kingdom Medical Series", Editor-in-Chief, Arthur S. MacNalty, K.C.B., M.D., F.R.C.P., F.R.C.S. "Medicine and Pathology", edited by V. Zachary Cope, B.A., M.D., M.S. (London), F.R.C.S. (England), with a general preface to the series by the Editor-in-Chief; Volume I; 1952. London: Her Majesty's Stationery Office. 9½" × 6½", pp. 594, with one illustration and two text figures. Price: 50s.

The first of two volumes of the official medical history of the second World War relating to clinical medicine and surgery.

"Medical Emergencies: Diagnosis and Treatment", by Francis D. Murphy, M.D., F.A.C.P., with a foreword by George Morris Piersol, M.D.; Fourth Edition; 1952. Philadelphia: F. A. Davis Company. Sydney: Angus and Robertson, Limited. 9½" × 6½", pp. 588, with 25 text figures. Price: 80s. 9d.

The title is self-explanatory. The book is intended for the general practitioner and medical student.

"Textbook of Gynecology", by Emil Novak, A.B., M.D., D.Sc. (Hon.), F.A.C.S., F.R.C.O.G. (Hon.), and Edmund R. Novak, A.B., M.D., F.A.C.S.; Fourth Edition; 1952. Baltimore: The Williams and Wilkins Company. Sydney: Angus and Robertson, Limited. 9" × 6½", pp. 812, with 523 illustrations. Price: £4 16s. 9d.

Intended to present "as much information as is possible in as practical a fashion as possible on the subjects of gynecology and female endocrinology".

"Clinical Interpretation of Laboratory Tests", by Raymond H. Goodale, M.D.; Second Edition; 1952. Philadelphia: F. A. Davis Company. Sydney: Angus and Robertson, Limited. 9½" × 6½", pp. 622, with 107 illustrations, three in colour. Price: 70s.

For medical students, interns and medical technologists, as well as clinicians.

The Medical Journal of Australia

SATURDAY, NOVEMBER 22, 1952.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: surname of author, initials of author, year, full title of article, name of journal without abbreviation, volume, number of first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

LEPROSY AT NAURU.

THE little island of Nauru, in its relative isolation in the central Pacific Ocean, has been of interest to Australia for several reasons. Before the 1914-1918 war it was German territory; after that war its importance as a source of phosphates brought it under the review of the League of Nations, when an administrator looked after the well-being of its inhabitants, who were employed by or otherwise the responsibility of the Phosphates Commission. From the medical point of view Nauru was closely linked by the useful work carried out by Australian medical men on the island, and by the occurrence of an epidemic of leprosy. The medical men who carried out investigations there included the Australians F. G. Morgan, H. R. Dew, A. M. B. Grant, T. M. Clouston and the late G. W. Bray; the first two of these were commissioned to perform diagnostic surveys, and the others served as medical officers. The significance of leprosy on Nauru was unusual, for an outbreak originated during the period of German occupation, appeared amongst the indigenous population after a brief span of years and spread rapidly till a considerable proportion of the inhabitants were affected. This epidemic is interestingly reviewed by H. W. Wade and V. Ledowsky, the latter of whom is now the Government Medical Officer at Nauru.[1] The actual introduction of leprosy into the previously uninfected population is attributed to one or both of two persons who were permitted to enter, one against medical advice, the other without knowledge of his condition. Any possible contagion from these could not have occurred later than 1914, and by 1920 cases of leprosy had been recognized among the Nauruans. There is further evidence that leprosy affected two other persons on Nauru at or shortly after the outbreak of the 1914-1918 war. One piece of medical history of interest about this period is that influenza in severe epidemic form swept Nauru in 1929 and killed some 30% of the people. Morgan, in his survey of 1922, found 10 isolated patients, 25 new cases and numbers of suspects. Townsend, in 1924, reported that in almost every family at least one member was a leper. Thereupon a clinic was opened and active treatment pursued. Some eleven years later only 66 patients were isolated, but 115 were receiving out-patient treatment. In 1937 Clouston found that out of a population then numbering 1600, some 10% were proved to have leprosy.

This brings us to the beginning of the 1939-1945 war, during which some of the unfortunate patients suffered at the hands of the Japanese. At the end of 1941 there were 133 patients with leprosy on Nauru, 41 of whom were in the isolation station. In 1943 the Japanese towed all the inmates of this station out to sea to meet a fate which is still obscure, though it could have only one end. One report is that their leaky boat was sunk by gunfire: it is certain that they were heard of no more. Some of the out-patients were amongst other Nauruans sent to Truk during the Japanese occupation; over 750 were subsequently returned to Nauru. Since the war active work has proceeded on the island, both diagnostic and therapeutic, and better quarters and conditions have been provided for patients. Treatment, too, has been modernized, with improved results. "Diasone" was used for two years, and since 1950 sulphetrone, given to patients in whom bacteriological proof of disease has been found, has won praise for its ease of control and economy. Though most of the cases treated have been existent for rather long periods, definite improvement has been noted; the organisms have shown granulation after six months of treatment, and have not been demonstrable some six months later. Wade and Ledowsky deal with the local epidemiological features of this remarkable outbreak. The terrain of phosphate rock (derived from guano deposits) over coral gave difficulty in maintaining hygiene, but the use of concrete on the floors of the simple thatched houses and control of water and sanitation, with frequent inspection, kept a satisfactory standard. Regular survey of the inhabitants revealed those who showed suspicious clinical signs, and when necessary bacteriological confirmation was sought. Clouston carried out lepromin tests in a limited number of cases, but the results did not appear to be of great value, though observations were not really made on a large enough section of the people. In 1951 a rapid survey made by Austin for the South Pacific Health Service did not reveal any fresh cases of infections with Hansen's bacillus, and only four out of 56 patients attending the clinic had active disease.

Analysis of the Nauru epidemic reveals some further remarkable features. The high proportion of the population affected has already been mentioned; up to 1929 about 35% of the entire community had demonstrable leprosy. Another unusual point is the prevalence of the maculo-anæsthetic type of the disease. The high incidence might be taken to indicate a high degree of susceptibility, yet the predominant form appears to negative this assumption. Whether the severe outbreak of influenza had any bearing on the subsequent incidence of leprosy is doubtful, though latent lesions might have flared into activity. Females and males were equally susceptible, and many infections obviously occurred after childhood in mature adults. Many patients were allowed to live out of an

[1] *International Journal of Leprosy*, January-March, 1952.

isolation compound; just what effect, if any, this had upon incidence is doubtful, and so too is the significance of prevalence of the maculo-anæsthetic type. Finally, Wade and Ledowsky refer to the validity of the bacteriological methods of diagnosis, especially the fallacies in relying on nasal swabbings, and the need for selection of apt sites for biopsy of macules. It is interesting that Bray pointed out the value of diagnostic extirpation of whole small lesions.

Leprosy is a disease of great interest and importance to us in the Pacific area. On the one hand we have responsibilities to native populations in Australia and neighbouring islands, and on the other we should not forget the humanitarian needs of the sufferers from leprosy or, as the Queensland Health Services for cogent reasons would prefer to call it, Hansen's disease.

Current Comment.

CORONARY ARTERIAL PRESSURE IN SHOCK.

THE observations of J. Ross Veal, A. S. Russell and F. S. Ashburn[1] on the coronary arterial blood pressure of anæsthetized dogs during shock of varying degrees of severity are related to several problems of practical importance. In their experiments, the anterior descending branch of the left coronary artery was cannulized and connected to an electromanometer, simultaneous recordings being taken from the thoracic part of the aorta, the left carotid artery or a femoral artery. Changes in the coronary pressure were recorded at various levels of shock or hypotension produced by bleeding the animal, and during certain resuscitative measures, namely, occlusion of the aorta, placing of the animal in Trendelenburg's position and intravenous and intraarterial infusions. The decline in systolic and diastolic pressures in the coronary artery was found to parallel closely the fall in peripheral arterial pressures. In shock of moderate severity, occlusion of the thoracic aorta, which produced coronary "hypertension" in normal dogs, resulted in a rise in coronary pressure to a level above the normal, while compression of the abdominal aorta showed a less marked effect. A slight but definite rise followed the adoption of Trendelenburg's position. A comparison of rapid intravenous and intraarterial infusions indicated that, while both were effective in mild or moderate shock, the former was usually ineffective, and perhaps dangerous, when the shock was severe. The intraarterial transfusion led to an immediate—rather than a delayed—response, and this was maintained as the blood volume approached normal. A concomitant rise in peripheral arterial pressure always occurred. Incidentally, a decrease in heart size was noted as exsanguination proceeded, but with the development of extreme shock cardiac dilatation usually ensued, and death followed quickly in the absence of urgent restorative measures. Finally, in some animals in which the heart stopped beating, it was found that cardiac massage not only transmitted a pulse wave to the peripheral arteries, but also caused an elevation in coronary blood pressure similar to that produced by a normal beat. Cardiac massage was more likely to be successful in restoring spontaneous activity if associated with replacement of lost blood. The authors do not present detailed results of all their experiments, but some excellent illustrative tracings are reproduced.

These observations have a bearing on the treatment of shock in general, but they are perhaps of greatest interest in regard to the management of emergencies occurring in the operating theatre. Although the value of cardiac massage in cases of cardiac arrest has long been known, and has in fact recently received emphasis and illustration in a paper by J. F. Dark, T. Dinsdale, A. N. Guthkelch and L. P. Lassman,[1] who report several successful cases of its use, the experimental vindication of the procedure is useful. The maintenance of coronary blood pressure by aortic occlusion may have limited application as a temporary measure in some surgical emergencies. In the discussion following the paper by Ross Veal *et alii*, the question was raised of using intraarterial infusions in the treatment of shock associated with coronary occlusion. The frequency of this medical emergency stresses the need for an early evaluation of this form of therapy, but reports to date are inconclusive.

[1] *Annals of Surgery*, September, 1952.

A JOURNAL OF APPLIED STATISTICS.

THE Royal Statistical Society has begun the publication of a new journal, *Applied Statistics*. The first number appeared in March, 1952, and it is to be issued three times each year, in March, June and November. In a foreword to the first number, A. Bradford Hill, the president of the Royal Statistical Society, states that *Applied Statistics* has been founded to meet the needs of all workers concerned with statistics—not of professional statisticians only, but also of those innumerable workers in industry, commerce, science and other branches of daily work who must handle and understand statistics as part of their daily tasks. Its aim, in short, he continues, is to present in one way or another, but always simply and clearly, the statistical approach and its value, and to illustrate in original articles modern statistical methods in their everyday applications. It is intended that there will be articles of general interest to laymen as well as technical articles. The first number has a bias towards commerce and industry, but it is hoped also to publish articles of interest to economists and social scientists, medical scientists and agricultural scientists, chemists and physicists, engineers and technologists. In addition to original articles, the journal will contain book reviews, letters to the editor and answers to questions and problems submitted by readers. The publishers, Oliver and Boyd, Limited, of Edinburgh, have produced an attractive journal which should have a wide appeal. The editor is L. H. C. Tippett.

CHLORAMPHENICOL AND APLASTIC ANÆMIA.

THE occurrence of aplastic anæmia in association with administration of chloramphenicol has been featured in the lay Press. Although the number of reported cases is extremely small in relation to the extensive use of this popular antibiotic, the possibility needs to be borne in mind. All the early reports on the clinical use of chloramphenicol indicated an absence of toxicity, despite theoretical possibilities based on experimental findings, and it has been widely employed with confidence. There have been isolated warnings. It may be remembered that at a stage when the drug was fairly new in Australia, P. F. Gill, of Brisbane,[2] reported two cases of granulocytopenia occurring in babies in association with chloramphenicol therapy, and about the same time I. F. Volini *et alii*,[3] in America, reported one case of anæmia and granulocytopenia and two of granulocytopenia in patients receiving the drug. All patients mentioned in these two reports recovered. The first frank case of aplastic anæmia was that reported by M. L. Rich *et alii*[4] later in the same year; the patient died. Few references have been made to the matter since, but recently no less than 15 cases of fatal aplastic anæmia have been reported from both sides of the Atlantic. The majority of the patients concerned

[1] *British Medical Journal*, September 6, 1952.

[2] THE MEDICAL JOURNAL OF AUSTRALIA, June 10, 1950.

[3] *The Journal of the American Medical Association*, April 29, 1950.

[4] *Annals of Internal Medicine*, December, 1950.

were children. Of 12 American cases, L. E. Wilson[1] reports one occurring in a woman, aged thirty-nine years (a second patient recovered), P. Sturgeon[2] reports six in children, R. K. Smiley and M. M. Wintrobe[3] report two in children and one in a man aged twenty-nine years, and D. B. Clandon and A. A. Holbrook[4] report two in elderly people (a woman, aged seventy-one years, and a man, aged ninety-two years). The three British cases,[5] of which L. A. Hawkins and H. Lederer report two and B. Wolman reports one, were all in children under the age of eight years. Examination of the reports is not particularly illuminating, though there is much in them of interest. The evidence incriminating chloramphenicol is circumstantial, but cannot very well be disregarded. Why a select few of the many patients treated should meet with disaster is not clear. The fact that only two patients were in middle adult years is striking, and in a number of cases prolonged administration may have been responsible. Otherwise we have to fall back on the presence of some idiosyncrasy that may or may not be readily definable. Certainly the complication is rare and offers no justification for withholding chloramphenicol in the many cases in which it is known to be of great therapeutic value. Extra care is indicated if the patient is a child or an old person, and prolonged administration is not justified in any circumstances. Self-medication is to be deplored, and the medical man ordering chloramphenicol for a patient should be sure that it is specifically indicated. There are, of course, other sound reasons for the last-mentioned provision apart from the rare possibility of fatal complications.

CORTISONE AND ACTH THERAPY IN THROMBOCYTOPENIC PURPURA.

THE Medical Research Council preliminary report[6] on the treatment of various blood dyscrasias with ACTH and cortisone presented encouraging but not dramatic results in cases of idiopathic and toxic thrombocytopenic purpura. S. J. Wilson and G. Eisemann[7] have recently recorded remissions attributed to ACTH or cortisone in five of twelve cases of idiopathic thrombocytopenic purpura. In each of the five cases the platelet count approached or exceeded normal within about two weeks. In six of the remaining seven cases there was "clinical improvement in the purpuric manifestation of the disease", but apparently no hæmatological remission was produced; five of the patients subsequently responded to splenectomy. W. W. Faloon, R. W. Greene and E. I. Lozner[8] are to be commended for their approach to the problem, in that they attempted to use ACTH and cortisone therapy as a method of investigating the hæmostatic defect in thrombocytopenic purpura. In addition to serial blood examinations, serial petechial counts were performed under standard conditions as regards mode of production, site and area, and, one assumes, counting. The petechial count fell significantly in association with clinical evidence of improvement in the seven cases studied (four of idiopathic purpura and three of leuchæmia with thrombocytopenia and purpuric signs). A rise in platelet count, associated with improved clot retraction and prothrombin utilization, occurred in two of the cases of idiopathic purpura, but in both instances it was preceded by increased "vascular resistance". It is unfortunate that a similar investigation was not made of a group of patients receiving cortisone or ACTH for a condition such as rheumatoid arthritis, in which the petechial count may also be raised. Nevertheless, it would appear to be established that some clinical improvement may take place with or without evidence of hæmatological remission in a considerable proportion of cases of idiopathic purpura, and that this response may be of value in the treatment of the acute phase or during the period of preparation for splenectomy, even if no permanent remission is produced. In addition, by virtue of their ability to increase vascular resistance, cortisone and ACTH may be of use in selected cases of leuchæmia in the symptomatic treatment of hæmorrhagic manifestations. Faloon and his associates consider various mechanisms by which this effect on capillary resistance may be produced, and both papers discuss their findings in the light of current ætiological concepts. While the latter remain uncertain, the mode of action of the two hormones is largely a matter for speculation. However, at least it may be said that the dissociation of petechial and platelet counts does not suggest that excess platelet utilization is the sole factor in the development of thrombocytopenia.

[1] *The Journal of the American Medical Association*, May 17, 1952.
[2] *Ibidem*, July 5, 1952.
[3] *Ibidem.*
[4] *Ibidem.*
[5] *British Medical Journal*, August 23, 1952.
[6] *Ibidem*, June, 1952.
[7] *The American Journal of Medicine*, July, 1952.
[8] *Ibidem.*

ACUTE APPENDICITIS IN INFANTS.

APPENDICITIS occurring in patients under the age of two years is an uncommon disease and difficult of diagnosis. In two recent articles[1] W. H. Snyder and L. Chaffin, and C. D. Benson *et alii* review the literature and add a further 60 cases. Snyder and Chaffin point out that in 1885 Frederick Treves described the anatomy of the caecum and appendix and classified the common types. The fœtal type with a funnel-shaped opening of appendix into caecum is the most common in infants. The obvious difficulty of causing obstruction in such an appendix gives a reasonable explanation of the low incidence of acute appendicitis in this age group. At the Los Angeles Children's Hospital the incidence was 0·1% of admissions to hospital, ranking low in frequency in the causes of "acute abdomen" in infants. In the second year of life it is seven times more frequent than in the first. The diagnosis is difficult. The condition masquerades as gastro-intestinal upset or upper respiratory infection until 71% of the appendices have perforated; indeed, the two conditions may coexist. Benson *et alii* emphasize the diagnostic triad of abdominal pain, vomiting and fever, and naturally the children become fretful and difficult to feed. Examination may reveal abdominal tenderness, spasm or distension. Rectal examination can be of help. In only one-third of the cases is the condition diagnosed under three days, and two-thirds of the patients have developed peritonitis or abscess by this time.

In treatment Snyder and Chaffin advise the following measures: (i) Gastric and upper intestinal suction. (ii) Intravenous administration of fluids and electrolytes, supplemented if necessary by blood transfusion. (iii) Full dosage of antibiotics—amongst others they give by intravenous injection twice daily 50 milligrammes of aureomycin hydrochloride in 100 millilitres of fluid. (iv) Postponement of surgery in the case of a sick toxæmic child until improvement is evident, which may take four to eight hours. No precise clinical criteria are given, but, provided the infant's condition is good enough to allow of safe anæsthesia, undoubtedly removal of the appendix is of prime importance. (v) Removal of the offending organ. (vi) Administration of oxygen, analgesics and vitamins when indicated. (vii) Post-operative care as a continuation of pre-operative therapy. Snyder and Chaffin state that the overall mortality from appendicitis in children under two years of age is 29% throughout the literature, but no doubt the actual figure is higher owing to the tendency for medical correspondents to report successful individual cases, or series of cases, of a disease in which they are both interested and proficient. It is a great encouragement that in both these recently reported series there have been no deaths in the later cases, in which treatment has been instituted according to the routine described above.

[1] *Archives of Surgery*, May, 1952.

Abstracts from Medical Literature.

GYNÆCOLOGY AND OBSTETRICS.

Vesico-Vaginal Fistulæ.

B. CARTER, L. PALUMBO, R. N. CREADICK AND R. A. ROSS (*American Journal of Obstetrics and Gynecology*, March, 1952) report on a series of 73 patients with 57 vesico-vaginal, three urethro-vaginal, eight urethro-vesico-vaginal and five vesico-cervico-vaginal fistulæ. Treatment was a failure in ten cases. There were five main ætiological groups: (i) Obstetric fistulæ caused by injury at vaginal delivery, 28 cases. (ii) Operative fistulæ, 26 following abdominal operation and five vaginal. (iii) Traumatic fistulæ, not of obstetrical, gynæcological or irradiation origin, two cases. (iv) Irradiation fistulæ, nine with carcinoma of the cervix and one in a diabetic patient with myomata of the uterus. (v) Fistulæ resulting from irradiation for carcinoma of the cervix followed by hysterectomy, three cases. In fistulæ due to irradiation or irradiation *plus* operation, treatment failed in five out of twelve cases, in eleven of which the patient had cancer of the cervix. In the remaining group of 61 fistulæ there were five failures. The highest percentage of failures in this group occurred with urethro-vesico-vaginal fistulæ and vesico-cervico-vaginal fistulæ.

Pelvic Tuberculosis.

P. M. G. RUSSELL, MARGARET HADLEY JACKSON AND R. L. MIDGLEY (*The Journal of Obstetrics and Gynæcology of the British Empire*, October, 1951) review 40 cases of pelvic tuberculosis. They state that the incidence in a known tuberculous population was not high, as only eight women of 1417 between fifteen and forty-five years of age admitted to a sanatorium had recognizable pelvic tuberculosis. The distribution of the lesions without operation is difficult to ascertain. Pulmonary tuberculosis must be excluded by proper examination in each case. The human bacillus preponderates as the causative organism, and human contacts must be sought in all cases. The authors divide the patients in their series into two groups: (*a*) those with no demonstrable signs of active tuberculosis other than those in the genital organs (33 cases); (*b*) those with active tuberculosis elsewhere (seven cases). They state that in the former group the condition may be symptomless, although a past but often forgotten history of vague abdominal illness, pleurisy, cervical adenitis or *erythema nodosum* is suggestive. Twenty-five patients were being investigated for sterility, and the pelvic tuberculosis, which usually spells complete sterility, was generally unsuspected. Routine endometrial biopsy in the investigation of sterility is essential. Only in one case did biopsy cause a severe reaction; tubal insufflation in 18 of the 25 cases produced no unfavourable reactions, though 14 patients had evidence of occlusion or abnormal tracings. The authors have the impression that there is no strictly typical appearance of the Fallopian tubes in tuberculous subjects with utero-salpingography. The lumen of the tube may remain patent as far as the abdominal ostium. The chance of a "flare-up" after oil injection is slight, but the oil in the tubes may evoke a foreign body reaction which may be confused with tuberculosis. No patient with indisputable tuberculosis of the endometrium or tubes was subsequently fertile. Two patients had symptoms and signs of acute salpingo-oophoritis, which may be confused with acute pyogenic salpingitis or appendicitis. It is important to diagnose the acute tuberculous salpingitis and avoid operation until the acute stage has subsided and the patient has been protected by rest, para-aminosalicylic acid and streptomycin. Failure to do so may result in ileus, peritonitis, fæcal fistulæ, sinus formation, tuberculous meningitis and even death. Failure to respond to sulphonamides and penicillin is characteristic. Chronic salpingo-oophoritis is also easily overlooked and confused with the pyogenic type; however, the patient is usually young, may be *virgo intacta* and has no history of previous febrile puerperium, abortion or gonorrhœa, and an endometrial biopsy under cover of streptomycin may reveal a tuberculous endometritis. With acute tuberculosis elsewhere in the body, the important symptom of pelvic tuberculosis is lower abdominal pain. The sex incidence of acute general tuberculous peritonitis with ascites is equal in childhood, but from adolescence onwards in the authors' series of 3000, no record of a new male case occurred, a fact suggesting some cause peculiar to sex and spreading from the genital organs. Tuberculous peritonitis, salpingitis or endometritis may occur soon after abortion or delivery, which suggests that pregnancy or delivery may lower a patient's resistance to tuberculosis. In treatment, the authors advise adequate general care of the patient, depending on the severity of the disease. Surgery is indicated only if there is some other indication in addition to the mere presence of pelvic tuberculosis. Para-aminosalicylic acid and streptomycin were found to be useful adjuncts to routine sanatorium measures, within limitations; the best use of streptomycin is as a protection against local and general exacerbations of the disease and against the development of sinuses and fistulæ which may follow operations. Indications for operation are, broadly speaking, failure to respond to sanatorium treatment as evidenced by lower abdominal pain, fever, palpable enlargement of the adnexæ, fixation of the uterus or persistently raised sedimentation rate. The operation should be thorough and designed to eradicate all tuberculous foci in the pelvis. A decision for hysterectomy should not be made until the endometrium has been examined histologically and bacteriologically, as the endometrium is often "spared".

Malignant Tumours Involving the Vulva.

C. G. COLLINS *et alii* (*American Journal of Obstetrics and Gynecology*, December, 1951) report a study of 37 cases of malignant tumours of the vulva during the period 1946-1951. Findings are compared with a similar series of cases from the same hospital reported by Lunin in 1949. There was a fairly even distribution of cases among white women and Negro women. The ages of patients varied from twenty-seven years to seventy-eight years, the average age being 54·3 years. The incidence of granulomatous venereal disease in Negro patients under the age of fifty years with carcinoma of the vulva suggests to the authors that the presence of such venereal disease may favour the early appearance of carcinoma of the vulva. They consider that any ulcerative condition of the vulva should be thoroughly investigated before operation, by means of the Frei test to exclude *lymphopathia venereum*, smear examinations for Donovan bodies (*granuloma inguinale*) and for Ducrey bacillus, dark-ground examination for spirochætes, the Wassermann test and biopsy. Ulceration, bleeding, pruritus and pain were the commonest symptoms and signs in the reported series, and the average duration of symptoms before treatment was sought was 41·7 months. Of the reported patients 60% had received inadequate treatment without accurate diagnosis before seeking advice. The authors state that when benign ulcerated lesions do not respond to treatment and when chronic areas of leucoplakia or kraurosis fail to respond to medical treatment, they consider that radical vulvectomy should be performed and the tissue submitted to multiple-section study. They regard adequate surgery, comprising radical vulvectomy and gland dissection extending from the lower portion of the abdominal aorta to Hunter's canal, as the treatment of choice for carcinoma of the vulva. Irradiation, in their view, has no place in the treatment of this disease. Their plan of surgical treatment has been to perform radical vulvectomy alone for intraepithelial carcinoma and radical vulvectomy and complete gland dissection for invasive carcinoma. The second procedure is usually performed by them in three stages. The first stage consists of radical vulvectomy; the second and third stages consist of radical gland dissection of the right and left sides respectively. Twenty-five patients of the series had radical vulvectomy and gland dissection, six patients had radical vulvectomy only, and there was but one post-operative death, which was due to pulmonary embolus, occurring two weeks after radical vulvectomy only. Of patients who had lymph gland dissection, 16% showed involvement of lymph nodes by carcinoma. The authors stress the importance of pre-operative assessment and treatment, and consider that the advent of antibiotics, blood transfusion and modern anæsthesia has permitted a high operability rate and a more extensive surgical attack on the disease. They state that "patient delay" and "doctor delay" are still factors in defeating what otherwise might be a relatively high cure rate in vulval malignant disease.

Vulval Cancer.

W. K. DIEHL, J. W. BAGGETT AND J. H. SHELL (*American Journal of Obstetrics and Gynecology*, December, 1951) record a critical review of a selected compared series of 50 patients suffering from carcinoma of the vulva. The series comprised equal numbers of private and public hospital patients. From this study the authors state that carcinoma of the vulva occurred once in approximately 40 cases of cancer of the female reproductive organs. It is essentially a disease of older women, and 50% of patients were in the twenty years age group of sixty to seventy-nine years.

White women appear to be more prone to carcinoma of the vulva than Negro women, and the Negro women affected appear to be younger than the white women. Squamous-cell carcinoma is by far the commonest histological type; there were no glandular carcinomata in this series. The site, degree of ulceration and presence of infection of the local lesion are of more prognostic significance than histological grading. Of patients with ulcerated growths, 77% succumbed to the disease in less than five years. Metastases in the inguinal glands were present at the first examination in 56% of patients, and of this 56% with gland involvement 60% did not survive five years regardless of the type of therapy. The authors noted that pruritus was an outstanding and early symptom. In contrast to carcinoma of the cervix, pain was a relatively early symptom of vulval neoplasm. Bleeding and discharge are late signs with ulcerating cancers. The results of treatment in the series studied may be summarized as follows. Three patients were beyond treatment and succumbed rapidly to the disease. Twelve patients were treated by irradiation alone, and all died within five years; only two of these patients survived more than one year. Thirteen patients were treated by local excision of the vulva and the five-year survival rate was 23%. Eleven patients were treated by irradiation and local excision with a five-year survival rate of 36%. Eleven patients were treated by a modified Basset operation with a potential five-year salvage rate of 55%. The authors describe and illustrate the modified Basset operation employed by them. They state that since the performance of the operation in two or three stages and the advent of chemotherapy, better blood transfusion facilities and safer anæsthesia, almost all patients can be submitted to adequate surgical treatment.

The Myomatous Uterus Complicated by Pregnancy.

JOHN PARKS AND ROBERT H. BARTER (*American Journal of Obstetrics and Gynecology*, February, 1952) report a series of unusual clinical problems in which uterine myomata were complicated by pregnancy. They consider that only those fibroids which are eight centimetres or more in diameter become clinically significant, and that of patients with uterine myomata who become pregnant very few will encounter any major difficulty. They state that it is well known that uterine myomata reduce fertility and contribute to an increased incidence of spontaneous abortion. The abortion rate has been estimated as being about twice as great with a myomatous uterus as compared with the normal. One of the major complications of myomata complicated by early pregnancy is abortion followed by tumour degeneration and infection. During the middle trimester of pregnancy certain complications may occur: subserous tumours on the anterior wall of the uterus may give rise to pressure symptoms and disturbances of the bladder; distortion of a round ligament by a relatively small myoma may be quite painful; any tumour of appreciable size which is fixed in the cul-de-sac by the utero-sacral ligaments may cause acute pressure symptoms on the vessels and nerves of the pelvis. The size of a tumour alone is no indication for myomectomy, and this operation is rarely necessary during the course of pregnancy. The authors refer to the difficulty in differentiating between the pain of threatened abortion and that of a degenerating myoma. They recommend hysterectomy as the safest method of treatment for inevitable abortion with a coexisting degenerating myoma. They list the following complications occurring during late pregnancy and delivery: fœtal malpositions, inertia or expulsive dystocia, obstructive dystocia and premature labour. They state that defective myomectomy scars may rupture during the latter part of pregnancy or during labour, and such patients require careful observation. A majority of women can be delivered safely *per vaginam* after myomectomy, but elective Cæsarean section becomes the treatment of choice when there is evidence of tumour degeneration, obstructive dystocia or fœtol malposition in late pregnancy. Myomata complicating pregnancy may cause three immediate complications in the puerperium: atonic post-partum hæmorrhage, hæmorrhage from submucous myomata which have been disturbed by delivery of the infant or placenta, and disruption of omental adhesions from their attachment to subserous myomata resulting in intraperitoneal hæmorrhage. Delayed complications of the puerperium include severe or prolonged hæmorrhage from a uterus which contains a submucous myoma, infection superimposed upon degenerated myomata, twisting of pedunculated tumours and pain due to tension on omental adhesions.

The Effects of Anæsthesia upon Fallopian Tubal Motility.

A. H. C. WALKER AND R. J. STOUT (*The Journal of Obstetrics and Gynæcology of the British Empire*, February, 1952) report a detailed study into the reaction of the Fallopian tubes to a variety of anæsthetics and premedication agents in order to determine their clinical value in diagnostic and therapeutic utero-tubal insufflation. They investigated 359 Nigerian women, of whom 141 complained of primary sterility and 218 of secondary sterility. All patients were submitted to two utero-tubal insufflations before anæsthesia and one insufflation while anæsthetized and were compared with a control group. Nine anæsthetic agents and two premedication alkaloids were investigated as regards their effects on pressure, amplitude of contractions, frequency of contractions and spasm of the uterine tubes. The authors set out the results in tables and graphs and summarize them as follows. Morphine increases tubal tone and amplitude of peristalsis. Ordinary doses used in premedication probably had little effect within one hour. Atropine caused no significant change in tubal activity, and there was no evidence of spasmolytic action or reduction of tubal tone. Light ether anæsthesia produced a considerable reduction of tubal tone with an increase of frequency, but had little influence upon the magnitude of tubal contractions. Chloroform caused only a small reduction in tubal tone, and a doubtful increase in amplitude. "Trilene" lowered tubal tone more than chloroform, and peristalsis remained unchanged. Nitrous oxide increased the amplitude of musculature contractions only. Cyclopropane and thiopentone produced no change in tubal motility. High spinal analgesia brought about an increase of the amplitude of peristalsis which was the most significant for any of the agents tested. Low spinal analgesia brought about a doubtful increase of amplitude. The authors investigated tubal activity in relation to the menstrual cycle and found that the magnitude of contractions and pressure were decreased premenstrually. In cases of primary sterility they found that retroversion of the uterus was associated with a greater tubal tonicity. A high incidence of utero-tubal spasm was found among the patients studied. After premedication 50% of patients had initial spasm in the first, second or both tracings; without premedication 40% had utero-tubal spasms. Subcutaneous injection of morphine and atropine before insufflation increased rather than allayed tubal spasm. Utero-tubal spasm tended to be abolished by ether, chloroform and "Trilene"; ether was probably the best of these anti-spasmodic agents. The authors observe that factors such as parity and the time of the menstrual cycle are not correlated to the incidence of utero-tubal spasm; on the other hand, the degree of nervousness of the patient and the association of retroversion have a clear correlation with the incidence of utero-tubal spasm. They recommend repeat insufflation at the same session, and, if necessary, anæsthesia, as the best method of overcoming initial utero-tubal spasm.

Cord Traction in the Third Stage of Labour.

F. C. R. PICTON (*The Journal of Obstetrics and Gynæcology of the British Empire*, October, 1951) supports the statement of Wilfrid Shaw, made in 1940, that gentle traction on the cord is not only harmless, but a very great help in assisting to expel the placenta. He is a proponent of the Brandt-Andrews technique, whereby the attendant, knowing the bladder to be empty and the signs of placental separation and descent complete, delivers the placenta by suprapubic upward displacement of the *fundus uteri* combined with gentle cord traction. He states that in this technique very little discomfort is ever caused, the bladder must be empty for its performance, the fundus is not handled, obesity does not render it difficult, the uterus is not allowed to descend into the pelvis and inversion cannot occur; and it is a simple manœuvre. The most important points for its successful operation are that the bladder must be empty, uterine contraction must be obtained and maintained, and whilst traction is being made the fundus must not be allowed to descend below the level of the umbilicus. Possible complications are (i) rupture of the cord, which is not a serious accident and will probably mean manual removal of the placenta, (ii) partial placental separation with hæmorrhage, which is common to all methods except manual removal, (iii) incomplete removal of the placenta, an uncommon complication of this method, and (iv) acute inversion of the uterus, a possibility which can be entirely eliminated. The method neither causes nor increases shock, anæsthesia is not required, the technique is simple, and when used causes a considerable decrease in the incidence of manual removal, with its attendant risks.

Special Articles for the Clinician.

(CONTRIBUTED BY REQUEST.)

XLII.

VITAMINS IN MEDICINE.

WITH the commercial production of pure vitamins and vitamin concentrates on a large scale there has been much indiscriminate use of these substances. There is now a better understanding of the limitations in the clinical use of vitamins. This does not mean that we know all about the usefulness of these substances in conditions other than frank deficiency in the diet. While some of the vitamins have pharmacological effects when given in doses larger than the normal body requirements, in general their usefulness is limited to making good deficiencies brought about in any way, such as lack in the diet, inadequate absorption from the gut, or increased demand. Except in very few cases such as rickets there does not occur in man deficiency of one vitamin alone; the deficiencies are practically always multiple, and there is usually deficiency in other nutrients also.

There is no logical order in considering the vitamins, but the alphabetical method will serve.

Vitamin A.

Under most circumstances carotin is an effective substitute for vitamin *A* in the diet; but because of relatively poor absorption from the gut and incomplete conversion to vitamin *A* in the intestinal wall and liver, much more carotin is required than would be chemically equivalent to the needed amount of vitamin *A*. In general one international unit of vitamin *A* is about equivalent to three international units of carotin. Fat is necessary for carotin absorption, so that in conditions where fat absorption is poor, carotin absorption may also be poor. Liquid paraffin seriously interferes with carotin absorption. Non-conversion or very low conversion of carotin to vitamin takes place in some cases of diabetes and in hepatic diseases, and in these conditions ample supplies of vitamin *A* should be given.

In many diseases and in fevers the vitamin *A* concentration of the blood is low, but oral administration does not increase it. Pregnancy and lactation, which are common causes of deficiency, increase the maternal need for vitamin *A*, and if there happens to be a deficiency in the diet it is well to give extra vitamin *A* as the vitamin itself rather than carotin. Cod liver oil is a good source for this, as well as for vitamin *D*, particularly for the infant.

If there is adequate vitamin *A* or carotin in the diet the consumption of more will not improve night vision in healthy persons.

Vitamin B Complex.

It is best to consider all the members of the vitamin *B* complex together, for there is probably never a deficiency in one only of these vitamins.

The distribution of each of these vitamins in foodstuffs is very similar, although quantitatively there are differences. It follows then that where one is deficient several of the others will also be more or less deficient. In general then one should not administer single vitamins of this group but mixtures of those most likely to be deficient. In most cases thiamine, riboflavin, niacin and perhaps pantothenic acid should be given together. There is little evidence that other members of the group are ever deficient in the diet of man excepting for folic acid and vitamin B_{12} in certain megaloblastic anæmias, but here other factors are important.

Disease conditions are recognized in which there is a considerable deficiency of one of the members of the group with lesser deficiencies of others, so that different symptom complexes can be separated. In beriberi the main deficiency is of thiamine, in pellagra it is of niacin, but administration of a single vitamin in these conditions may cause the appearance of symptoms associated with a major deficiency of another member of the group, as, for example, riboflavin, probably here due to a minor deficiency of riboflavin in the diet and increased excretion of riboflavin.

Short of these frank and well-recognized diseases, deficiencies of these vitamins sufficient to cause ill health are much commoner than is generally suspected. Very many cases of chronic nervous exhaustion or of mild neurasthenia are due to deficiency of, mainly, thiamine, but commonly of other members of the group too. The administration of the whole complex, or at any rate of thiamine, riboflavin and niacin, often brings about a dramatic improvement in the patient's outlook and in general health. If, with the nervous exhaustion, there occur also a sore, red tongue and cracks around the corners of the mouth, there is a call for the immediate administration of the mixed vitamins for the first few days in amounts greater than the normal body requirements to saturate the tissues and then smaller amounts so long as improvement continues.

Vitamin *B* group deficiency is probably the commonest food deficiency in Australia.

First signs of improvement are slowing of the pulse, diminution of neuritic pains, paræsthesia and calf tenderness and a new sense of well-being.

Claims have been made many times that large parenteral doses of thiamine are useful in all cases of neuritis from whatever cause, but it seems reasonably certain that thiamine is effective only when the nervous symptoms are due to thiamine deficiency. This is so, for example, in alcoholic neuritis, in which there is an acute deficiency of thiamine because alcohol forms so large a part of the diet.

Thiamine has been used in the treatment of cardiovascular diseases. Any improvement may be due to the vasodilator action of large doses of the substance.

In other than vitamin *B* complex deficiencies the value of riboflavin as a therapeutic agent is still to be shown. There are no clearly defined specific signs of riboflavin deficiency. All the so-called specific signs are found in other deficiencies, but riboflavin is often deficient together with deficiency of thiamine and niacin.

Pellagra is associated with a deficiency of members of the vitamin *B* complex with a greater deficiency of niacin than of the other members. Niacin, administered parenterally, may give severe vasodilator effects; niacin amide does not.

A form of dermatitis is sometimes seen in diabetics on a restricted diet; niacin has been effective in its treatment. Other clinical uses for niacin by itself are very doubtful.

Folic acid and vitamin B_{12} have a special part to play in connexion with various forms of megaloblastic anæmia. Folic acid, in relatively large doses, improves, but only temporarily, the blood picture of patients with true pernicious anæmia; but it fails to alleviate the nervous disorder and may precipitate its appearance. The administration of vitamin B_{12} brings about complete remission of all symptoms. In the megaloblastic anæmia associated with pregnancy and the puerperium, vitamin B_{12} has no effect, while folic acid may bring about a complete cure. Other types of megaloblastic anæmia vary in their response to folic acid and vitamin B_{12}.

In all these conditions there are other factors, not well understood, which cause an increased requirement for the appropriate vitamin.

There is little satisfactory evidence that other members of the vitamin *B* complex are ever deficient in man or have any special therapeutic value.

Ascorbic Acid.

Ascorbic acid is particularly related to the formation of ground substance of connective tissues, and the production of collagen and allied substances in bones and teeth. A good supply of ascorbic acid is essential for wound healing and the mending of fractures. Very many people consume barely enough ascorbic acid for requirements in health; so that when there is increased demand for this vitamin, deficiency may occur. Some of the diets given in special dietetic treatments are dangerously low in ascorbic acid. In infectious diseases a considerable decrease of ascorbic acid occurs in the blood, and there is good evidence that increased intake is beneficial in some cases, but its use in diphtheria, pneumonia and tuberculosis is of doubtful value. Many claims have been made that administration of ascorbic acid minimizes the toxic effects of various drugs, such as the sulphonamides, but the evidence is far from convincing.

Ample supplies of ascorbic acid are necessary in childhood to ensure, among other things, the proper growth of bones and teeth. In infancy this is commonly looked after by giving orange juice, but failing this ascorbic acid in tablet form may be necessary.

Many of the claims for administration of increased amounts of ascorbic acid have been based on determinations of ascorbic acid content of the blood, but these are of very doubtful value.

The appearance of symptoms of frank scurvy is, of course, an indication of the need for extra ascorbic acid, but this condition is relatively rare even in children.

If there is any evidence of a poor diet in a patient who is to have a surgical operation, the administration of extra ascorbic acid is indicated.

Vitamin D.

Vitamin *D* is necessary for the proper utilization of calcium and phosphorus in the body, so is very much related to the formation of bones and teeth. All foods are relatively poor sources of vitamin *D*, but adequate amounts may be formed by irradiation of the skin by the ultra-violet rays of sunlight. This makes it difficult to determine the amount of the vitamin necessary to be taken by mouth in the food or otherwise. During pregnancy, in the last few months, and during lactation the mother may need extra vitamin *D* if adequate exposure to sunlight is not obtained. In early infancy, too, extra vitamin *D* may be administered, but mild rickets may appear even when ample supplies of vitamin *D* are given. There is no acceptable evidence that the administration of vitamin *D* is of any value in any condition in adults other than in association with pregnancy and lactation and possibly in cases of fractures.

Vitamin *D* is of very doubtful value in the treatment of dental caries; indeed, acutely rhachitic children may have perfect teeth and vice versa.

In spite of the long history of the use of cod liver oil in tuberculosis, the evidence that administration of vitamin *D* is of value in tuberculosis is very poor.

Vitamin E.

A vast amount of work has been done on the clinical use of vitamin *E*, and while there is some evidence that it is useful in women with recurrent abortions, many gynæcologists do not accept the evidence.

There is better evidence that administration of vitamin *E* brings about improvement in patients with early muscular dystrophy, but treatment must be continued for a long time.

Vitamin K.

The only function that can be ascribed to vitamin *K* is to aid in the formation of prothrombin. It is therefore useful when prothrombin is deficient in the blood.

The natural vitamin in foods requires bile for its absorption from the gut, so that deficiency occurs in cases of obstructive jaundice. With certain intestinal disturbances, such as chronic ulcerative colitis, there is poor absorption from the gut, and deficiency may occur.

It is only in such cases and in hæmorrhagic disease of the newborn that vitamin *K*, given either parenterally or by mouth in the readily absorbed artificial forms, is of any use. It has no value in hæmophilia, purpura and diseases of the blood-forming organs or in traumatic hæmorrhages.

Other Substances.

Several other substances have been described as vitamins, but not enough is known yet to determine whether they have any value clinically.

A possible exception is choline, but it is doubtful whether this should be considered a vitamin. If one includes choline one should also include the essential amino acids.

HENRY PRIESTLEY,
Sydney.

British Medical Association News.

VICTORIAN BRANCH NEWS.

THE following statement is published at the request of the Medical Secretary of the Victorian Branch.

Relationship between Medical Practitioners and Pharmacists.

To facilitate exchange of views and promote harmony between the two professions, a Medico-Pharmaceutical Liaison Committee was established in Victoria in 1949.

At a recent meeting several matters which were considered likely to lead to misunderstanding between doctors and chemists were discussed, and, in particular, the committee agreed that the practices referred to below were to be deprecated and should be brought to the notice of the medical profession:

1. There is a growing tendency in some areas for prescribers to supply to a patient, or instruct a patient to obtain from some source other than the chemist, a drug and take it to the chemist to be incorporated in a prescription, and instances were quoted of prescriptions being marked: " . . . (drug) . . . supplied." Pharmacists consider it unsound practice to use in the dispensing of prescriptions any materials which come to them from outside usual trade channels, because of the possibility of contamination and mislabelling, and as the chemist carries the legal liability for what he dispenses, he is quite justified in refusing to accept material brought to him by a customer.

2. Some doctors are issuing prescriptions for a drug, for example, penicillin, and instructing the patient to obtain it from a chemist and make it up into preparations such as eye-drops, ear-drops *et cetera* in the home. The possibilities of contamination and error are obvious, and the practice is regarded by the committee as undesirable.

3. An instance was reported of a specialist issuing a prescription for potassium iodide with instruction to obtain this substance from a chemist and make it up into a solution. Again, the possibility of error is obvious and the practice undesirable.

Medical Societies.

THE MEDICAL SCIENCES CLUB OF SOUTH AUSTRALIA.

A MEETING of the Medical Sciences Club of South Australia was held in the Anatomy Theatre, New Medical School, Frome Road, Adelaide, on September 5, 1952.

The Olfactory Brain or So-Called "Rhinencephalon".

PROFESSOR W. E. LE GROS CLARK, F.R.S., presented a paper on the olfactory brain or so-called "rhinencephalon". He said that the hippocampus had long been considered an ancient structure which had arisen early in the evolution of the brain and was of considerable importance in lower vertebrates with a well-developed sense of smell, but of less importance in man, in whom the sense of smell was much reduced. The hippocampus had hitherto been assigned an olfactory function, for the reason that it was known that olfactory fibres entered the pyriform lobe on the basal aspect of the brain, and it was also known that fibres from part of the pyriform lobe entered the hippocampus. Once the hippocampus had been assigned an olfactory function, it had become necessary to assign olfactory functions to many other parts of the brain connected with the hippocampus, including the fornix, mammillary body, mammillo-thalamic tract, anterior nucleus of the thalamus, thalamus and cingulate gyrus. Professor Le Gros Clark pointed out that those structures, all long included in the rhinencephalon or "smell brain", had been ignored as a relic in the evolution of the brain and of no particular importance to man since his sense of smell had atrophied.

In recent years fallacies had been suspected in that hypothesis. The hippocampus in man had the biggest absolute volume of any mammal, as well as the largest size relative to that of the olfactory bulb. Moreover, in congenital anosmia the hippocampus persisted despite the absence of the olfactory bulbs and tracts. Professor Le Gros Clark cited the evidence of Allen that removal of the hippocampus in animals in no way modified conditioned reflexes involving olfactory stimuli. Tumours involving the hippocampus were not accompanied by altered olfaction, and stimulation of the hippocampus in the human did not produce olfactory sensations.

Professor Le Gros Clark then discussed the work he and his colleagues had performed in mapping the central olfactory connexions. Fibres from the olfactory bulb had been traced by studying with silver staining methods the changes in the terminal arborizations of nerve fibres approximately one week after section of the axon. So far as could be determined in the rabbit and monkey, the fibres of the olfactory tract ran back only to the extreme anterior end of the pyriform lobe. There was no evidence that they reached the posterior part of the pyriform lobe, or entorhinal area, from which direct pathways entered the hippocampus.

Professor Le Gros Clark suggested that, although the evidence was by no means complete, the remaining "rhinencephalic" structures, including the hippocampus, were concerned in emotional reactions rather than olfaction. Autonomic responses, which were common components of emotional reactions, could be evoked from the cingulate areas and other parts of the rhinencephalon. Klüver had shown that bilateral temporal lobectomy in monkeys produced a loss of emotional responses with fearless handling of dangerous objects, such as snakes, and gross alterations in feeding habits. Lesions involving the mammillary body were associated with confusional states. Bilateral removal of the cingulate gyrus in the monkey was followed temporarily by great docility. Cingulectomy had been tried by Cairns with considerable improvement in patients with anxiety and obsessional disorders, but without success in schizophrenics.

As the hippocampus appeared to be entirely innervated from the entorhinal area, it became important to know the afferent paths to the entorhinal area. Professor Le Gros Clark indicated that electrophysiological studies had shown pathways to it from auditory, visual and somatic sensory cortical areas. He suggested that it probably received afferent fibres from all other sensory areas of the cerebral cortex. It had also been shown to receive fibres through the cingulum bundle from the prefrontal cortex.

Professor Le Gros Clark pointed out that the hippocampus was present from fish to man, and the constancy of its position and structure suggested some very fundamental function in cortical activity. Its appearance in the reptile suggested that functionally it was a motor cortex, its efferent pathway being through the fornix bundle, which in the reptile passed uninterruptedly into the brain-stem. In mammals that pathway was partly interrupted in the mammillary body. Impulses thence passed back to the cingulate gyrus, and activity was thus prolonged at the cortical level. His colleagues in Oxford had shown that an increasing proportion of the fornix fibres were interrupted in the mammillary body as one ascended the primate scale.

Professor Le Gros Clark put forward the hypothesis that in man this circuit through the mammillary body allowed the persistence or maintenance of a particular pattern of cortical activity over a period of time rather than, as in submammalian vertebrates, the immediate dissipation of the resultant of cortical action in the primitive mechanisms of the brain-stem. He suggested that it might even play a part in the maintenance of anxiety states in man, which might be regarded as the outward expression of the maintenance of a particular pattern of cortical activity over an abnormal length of time.

Out of the Past.

In this column will be published from time to time extracts, taken from medical journals, newspapers, official and historical records, diaries and so on, dealing with events connected with the early medical history of Australia.

THE MEDICAL PROFESSION.[1]

[*Sydney Gazette*, 24 February, 1838.]

The attention of Sir Richard BOURKE was frequently and earnestly requested before his departure, through the medium of the public press, to the urgent necessity that existed for the passing of some legislative enactment, which, while it enabled the Colonists to guard against the impositions of quackery, should, at the same time, protect the interests of all regularly qualified Medical practitioners. Sir Richard, however, was not at any time remarkable for the promptitude with which he met the wants and wishes of the public on any subject, however urgent its nature, if it did not owe its origin to himself or to his immediate advisers. Although Sir John FRANKLIN the Lieut-Governor of Van Diemen's Land (who, if he possesses not the diplomatic talent of Sir Richard BOURKE, is at least untinctured by his blind obstinacy of disposition) had led the way, on this as well as on other subjects of general utility, and although proofs were accumulating weekly, strongly indicative of the necessity of such a measure, yet Sir Richard Bourke, in defiance, we are convinced, of the evidence of his own senses, allows every remonstrance addressed to him on the subject to pass by unheeded "as the idle wind which he regarded not".

The law requires that an attorney, who can only tamper with our purses, be not only duly qualified for the office before admission, but that he be also, nominally at least, a man of good character. The Medical practitioner, who tampers not with our purses only, but what is of more importance, with our bodily health, may, for any provision the colonial code of laws has hitherto contained, be one of the greatest villains on earth. Surely it is the duty of the Legislature to prevent ignorant and unprincipled men from trifling with human life. We are aware, that, in the event of fatal consequences resulting from the employment of ignorant and unprincipled Quacks, the law provides a cure, and that in the event of bodily injury being sustained from the ignorance of a Quack, the law will allow the sufferer ample damages: but is it not the imperative duty of the Legislature to enable the people to distinguish between the real and the pretended Simon Pure. We trust that this will be one of the first subjects to which Sir George Gipps will direct his attentions. The colony swarms in every direction, with individuals calling themselves Surgeons, many of whom we are assured have no better pretensions to the title than can be earned behind the counter of a druggist. The recent session of the Criminal Court has furnished us with two examples which both show the urgent necessity for passing some Act to prevent unqualified & worthless persons from exercising the functions of surgeons. In one case an individual designating himself a surgeon, was sentenced to transportation for life, having been detected in the Commission of a whole series of forgeries: and in the other case a man calling himself a surgeon, appeared in the witness box, in a case of murder where medical evidence was essential, in such a state of intoxication that, the learned Judge felt himself called upon to reject his evidence and sentence him to six months imprisonment for contempt of Court.

[1] From the original in the Mitchell Library, Sydney.

Correspondence.

A CORRECTION.

SIR: In the report of the proceedings of the combined meeting of the Anæsthesia and Oto-Rhino-Laryngology Sections, in the Congress Number of October 11, I have been seriously misquoted; and hence desire this letter to be published. On page 503, line 24, the word "lessens" should read "laces", which gives quite the opposite meaning. The corrected sentence thus becomes: "For adults a small dose of 'Nembutal' given before the morphine and hyoscine laces amnesia."

Yours, etc.,

9 Wingfield Avenue, Crawley, Western Australia.
October 27, 1952.

DOUGLAS WILSON.

[This error is regretted.—EDITOR.]

SODIUM THIOSULPHATE AND THE TREATMENT OF BRONCHIECTASIS.

SIR: The article by Dr. D. O. Shiels in the issue of THE MEDICAL JOURNAL OF AUSTRALIA of June 28, 1952, on the subject of the treatment of lead poisoning by the intravenous administration of sodium thiosulphate, has prompted me to write a short note with reference to the treatment of 12 cases of bronchiectasis and one case of pulmonary tuberculosis complicated by exfoliating dermatitis of unknown origin. These were all treated by the intravenous injection of 200 grains of sodium thiosulphate daily for five days in every week over a prolonged period.

It is well known that sodium thiosulphate in the presence of acid breaks down with the liberation of sulphur and sulphur dioxide gas, and it was assumed that such breakdown would take place in the venous blood-stream in the presence of carbon dioxide and that sulphur dioxide gas would be given off through the pulmonary tissues and alveoli. That this did actually occur was strongly suggested by the subjective symptoms described immediately after injection. Nearly all the patients registered a taste of some kind, which some could not describe and others described as a chemical taste or a taste of bad alcohol; others again merely experienced a cold feeling in the throat.

The technique adopted was the following. Ampoules containing 100 grains of sodium thiosulphate in 10 millilitres of distilled water were specially made up by Parke, Davis and Company. To the contents of each ampoule a further 10 millilitres of double distilled water was added in a 20 cubic centimetre "Record" syringe. The syringe was gently shaken until the syrupy appearance of the mixture was no longer visible. It was found that the concentration of sodium thiosulphate of 100 grains in 10 millilitres of distilled water, if injected without dilution, gave rise, in some instances, to venous clotting.

Not one of the patients treated gave any signs of distress or toxicity. One patient whose right lung was full of bronchiectatic cavities was given a series of four courses of injections, one of which comprised the administration of 4100 grains of sodium thiosulphate, given daily in two doses of 100 grains for five days in every week. Urine tests and blood counts were done at regular intervals, and no ill effects were registered from these large doses in any of the cases.

While the treatment was being carried out all but two cases, complicated by asthma, derived much benefit from reduced cough and sputum. The asthmatics did not respond. When the treatment was stopped, in the majority of cases there was a relapse in a month or so, as one rather anticipated. That is why this therapy, which was originally designed to treat pulmonary tuberculosis in combination with streptomycin, has not been reported heretofore.

The case of exfoliating dermatitis received a small amount of benefit from the injections. He disappeared, unfortunately, and could not be followed up. He had a prolonged course lasting over six weeks.

As one believes that it is not generally known that sodium thiosulphate can be given intravenously with complete confidence and impunity in these large doses, these notes have been put in for publication in the hope that they may be of value in the treatment of lead and other metallic poisons or for any other purpose.

I wish to thank the Chairman of the Repatriation Commission for permission to publish this letter.

Yours, etc.,

W. E. DAVID.

77 York Street,
Sydney,
July 29, 1952.

SECOND ANNUAL POST-GRADUATE AND RECREATIONAL COURSE.

SIR: On behalf of the Federation of Country Local Associations (New South Wales) I wish to draw the attention of members of the profession to the post-graduate course now being organized to be held in Orange during the second week of March, 1953 (March 9 to 13). It will be patterned on the very successful first course at Armidale in February of this year.

The talks and lectures, some 15 to 20 in number spread over the five days, will be given by leading medical specialists and by country practitioners; the latter will give the course a distinctive "rural" atmosphere. Some organized country excursions and social functions will emphasize the recreational side of the course. At the date selected and at the altitude of Orange there will be pleasant weather conditions, with ripening fruit in the orchards and colourful gardens.

Orange is 167 miles west of Sydney by tarred road and can be reached from Victoria, Queensland and South Australia by main roads, from Sydney by frequent trains, and by plane with bus from Bathurst. Further details and later on a detailed programme may be obtained from the undersigned.

Yours, etc.,

S. R. DAWES,
Organizing Secretary.

83 Kite Street,
Orange,
New South Wales.
October 31, 1952.

LOCAL APPLICATION OF THE SULPHONAMIDE GROUP OF DRUGS IN SKIN DISEASES.

SIR: At its annual general meeting on August 26, 1952, The Dermatological Association of Australia (British Medical Association) resolved unanimously that the sulphonamide group of drugs should not be used in compounded or uncompounded form as local applications in the treatment of skin diseases. It was resolved further that the legislature be approached through the British Medical Association with the object of having these agents, in the form of ointments, pastes *et cetera*, placed on the list of preparations requiring the prescription of a qualified medical practitioner. At present such preparations are freely available without a prescription and are used widely.

The sulphonamides applied locally are potent skin sensitizers. Resulting hypersensitivity can, and often does, lead to serious widespread dermatoses, including exfoliative dermatitis, a grave illness. It may also render dangerous the oral and parenteral exhibition of sulphonamides in circumstances where their use is needed urgently.

The profession as a whole is aware of these dangers, but legislative assistance is needed to safeguard the public against the complications which may follow the use of preparations which should be regarded as more dangerous than curative.

Yours, etc.,

REX BECKE,
Honorary Secretary, The Dermatological Association of Australia (British Medical Association).

139 Macquarie Street,
Sydney,
November 4, 1952.

Post-Graduate Work.

THE POST-GRADUATE COMMITTEE IN MEDICINE IN THE UNIVERSITY OF SYDNEY.

General Revision Course, 1953.

THE Post-Graduate Committee in Medicine in the University of Sydney announces that the annual general revision course will be held in Sydney from April 20 to May 1, 1953, inclusive. Further details will be announced later. Inquiries should be addressed to the Course Secretary, the Post-Graduate Committee in Medicine, 131 Macquarie Street, Sydney. Telephones: BU 5238, BW 7483.

Part II of Diploma Courses.

Part II of diploma courses in anæsthesia, gynæcology and obstetrics, laryngology and oto-rhinology and ophthalmology will begin on January 5, 1953, for approximately twelve weeks. Early enrolment is essential, and those wishing to attend should communicate immediately with the Course Secretary.

Clinical Meeting at Balmoral Naval Hospital.

A clinical meeting will be held at the Balmoral Naval Hospital on Tuesday, December 9, 1952, at 2 p.m., when Dr. F. Mills will speak on "Recent Advances in Cardiac Surgery". Clinical cases will be shown after the lecture. All members of the medical profession are cordially invited to attend.

THE MELBOURNE PERMANENT POST-GRADUATE COMMITTEE.

Course in Surgery.

SUBJECT to a sufficiency of entrants, the Melbourne Permanent Post-Graduate Committee will conduct a course of instruction for higher surgical study, suitable for those entering for the final F.R.A.C.S. examination in May, 1953, commencing on March 16 and finishing on May 1. The syllabus will comprise 25 clinical demonstrations, which will be held on Mondays, Tuesdays, Wednesdays and Fridays in the afternoon from 3 to 5 p.m. These will be conducted by Dr. G. Brosnan, F.R.A.C.S., F.R.C.S. (Saint Vincent's Hospital), Dr. G. Grove, M.S., F.R.A.C.S. (Alfred Hospital), Dr. I. Heinz, M.S., F.R.A.C.S. (Royal Melbourne Hospital), and Dr. R. Webb, M.S., F.R.C.S., F.R.A.C.S. (Prince Henry's Hospital). Provision will be made for entrants to attend out-patient clinics in the various hospitals. The course will be under the general supervision of Dr. S. F. Reid, M.S., F.R.C.S., F.R.A.C.S.

Those desirous of undertaking this course are asked to communicate with the Secretary of this Committee at 394

Albert Street, East Melbourne, without delay as it is essential that the Committee learn at an early date the number likely to enter. The fee for the course will be 20 guineas.

Royal Australasian College of Surgeons.

FACULTY OF ANÆSTHETISTS.

A FACULTY OF ANÆSTHETISTS within the Royal Australasian College of Surgeons was formally inaugurated on August 25, 1952, at the College. At that meeting Sir Gordon Gordon-Taylor presented to the Faculty an illuminated message from the Faculty of Anæsthetists of the Royal College of Surgeons of England.

The object of the Faculty is to improve, by all means possible, the art and science of anæsthesia. In this object the College is most anxious to help.

As soon as an election can be held in accordance with the regulations approved on August 25, 1952, a board of the Faculty, which shall govern its affairs, will be elected. In the meantime an acting board consisting of Sir Victor Hurley, Mr. Henry Searby, Dr. H. J. Daly, Dr. J. Ellis Gillespie, Dr. S. V. Marshall, Dr. D. G. Renton, Dr. L. G. Travers and Dr. G. R. Troup was authorized to act under the chairmanship of the acting dean, Dr. D. G. Renton.

The establishment of this Faculty is the happy culmination of the efforts of Sir Victor Hurley and Mr. Henry Searby, together with those of Dr. H. J. Daly, Dr. G. R. Troup, Dr. D. G. Renton, Dr. L. G. Travers and Dr. J. Ellis Gillespie, who were appointed by the Australian Society of Anæsthetists in 1950 to conduct the necessary negotiations with the College. With the general approval of the Australian Society of Anæsthetists, forty Foundation Fellows and sixty-two Foundation Members were invited to join. In future, in accordance with the regulations, applications for membership will be received from anæsthetists with appropriate qualifications, and recommendations will be made to the College Council for admission to membership of those approved by the board of the Faculty. The board may also submit a limited number of names annually to the College Council for election to Fellowship of the Faculty.

The Secretary of the Faculty is Mr. H. G. Wheeler, Royal Australasian College of Surgeons, Spring Street, Melbourne, C.1, to whom all inquiries should be addressed.

The Australian Society of Anæsthetists is to be congratulated on its wish to establish this scientific body, which it believed was a natural development of that association; the functions of the Faculty will be essentially educational and academic, and will not in any way lessen the importance of, or the work done by, the Australian Society of Anæsthetists.

Naval, Military and Air Force.

APPOINTMENTS.

THE following appointments, promotions *et cetera* are promulgated in the *Commonwealth of Australia Gazette*, Number 71, of October 16, 1952, and Number 72, of October 23, 1952.

NAVAL FORCES OF THE COMMONWEALTH.

Permanent Naval Forces of the Commonwealth (Sea-Going Forces).

The loan of the following to the Royal Navy for service and training is terminated: Surgeon Lieutenant John Roger McNeill, dated 9th May, 1952.

AUSTRALIAN MILITARY FORCES.

Royal Australian Army Medical Corps (Medical).

VX14663 Colonel (Temporary Brigadier) C. W. Nye, O.B.E., E.D., relinquishes the appointment of Deputy Director of Medical Services, Headquarters, British Commonwealth Forces, Korea, and British Commonwealth Occupation Force, 23rd June, 1952.

VX700292 Honorary Captain B. C. A. Stratford is appointed from the Reserve of Officers, and to be Captain (provisionally), 26th July, 1952.

VX700283 Captain (provisionally) H. L. Indian relinquishes the provisional rank of Captain and is transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical)) (3rd Military District) in the honorary rank of Captain, 3rd July, 1952.

To be Captains (provisionally).—NX700387 Donald Henry Trousdale and NX700386 Robin Geoffrey Rushworth, 28th July, 1952, VX700295 Kenneth Charles Robert Leversha, 30th July, 1952, and VX700297 James Edwin Hugh Milne, 31st July, 1952.

Regular Army Special Reserve.

Royal Australian Army Medical Corps (Medical).

VX14663 Colonel (Temporary Brigadier) C. W. Nye, O.B.E., E.D., relinquishes the temporary rank of Brigadier, and is transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical)) (3rd Military District), 26th August, 1952.

VX700289 Captain (provisionally) J. R. Officer relinquishes the provisional rank of Captain and is transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical)) (3rd Military District) in the honorary rank of Captain, 2nd August, 1952.

To be Captains (provisionally), 25th August, 1952.—QX700170 Frank Hender Garlick and QX700169 James Humphrey Joyce.

Citizen Military Forces.

Northern Command: First Military District.

Royal Australian Army Medical Corps (Medical).—The following officers are seconded whilst undergoing post-graduate studies in the United Kingdom: 1/25060 Captain (provisionally) R. T. Todd, 17th June, 1950, and 1/10316 Captain H. W. A. Forbes, 26th June, 1952. 1/39140 Captain J. G. P. Ryan is appointed from the Reserve of Officers, 7th July, 1952. 1/25060 Captain (provisionally) R. T. Todd relinquishes the provisional rank of Captain and is transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical)) (1st Military District) in the honorary rank of Captain, 14th July, 1952.

Eastern Command: Second Military District.

Royal Australian Army Medical Corps (Medical): To be Captain (provisionally), 29th August, 1952.—2/183732 George William de Meyrick.

Southern Command: Third Military District.

Royal Australian Army Medical Corps (Medical).—3/101809 Captain (provisionally) J. K. Clarebrough is seconded whilst undergoing post-graduate studies in the United Kingdom, 1st August, 1952. To be Captain (provisionally), 2nd September, 1952: 3/101020 David Nicholson Hawkins.

Tasmania Command: Sixth Military District.

Royal Australian Army Medical Corps (Medical).—6/15224 Captain (provisionally) W. J. Hickey relinquishes the provisional rank of Captain and is transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical)), Third Military District, in the honorary rank of Captain, 24th July, 1952.

Reserve Citizen Military Forces.

Royal Australian Army Medical Corps (Medical).

2nd Military District: To be Honorary Captain, 27th August, 1952.—Allan Roy Doutreband.

ROYAL AUSTRALIAN AIR FORCE.

Permanent Air Force.

Medical Branch.

The short-service engagement of the following officers is extended for a period of three years: Wing Commander H. J. Melville (03175), 23rd September, 1952, Squadron Leader W. L. Rait (033063), 1st December, 1952.

Harry Taylor Hardy (036451) is appointed to a short-service commission, on probation for a period of twelve months, 9th September, 1952, with the rank of Squadron Leader.

Squadron Leader H. J. Charters (033060) is appointed to a permanent commission, 1st September, 1951.

Medical Practice.

SUPPLY OF CORTISONE IN VICTORIA.

THE following information is published at the request of the Deputy Director of Health for Victoria.

Medical practitioners in Victoria who need cortisone urgently at week-ends or on public holidays should make application to one of the following: Dr. F. R. Kerr, WY 1104; Dr. R. Y. Mathew, BL 6818; Dr. C. C. Fenton, Windsor 2189.

Obituary.

ROY DADSON MULVEY.

DR. R. A. MONEY writes: The sudden and tragic death of the late Roy Dadson Mulvey came as a great shock to his many contemporaries and admirers. Returning from the first World War with a Military Cross and severe chest wounds, he was discharged from the first Australian Imperial Force in 1918, and, having found himself superseded in the State school teaching service by those who had stayed at home, he decided to take up medicine as a career. To attain this end, he was nobly assisted by his wife, a Master of Arts, who worked herself as a teacher to support their children and to supplement his princely sustenance of £2 2s. a week, granted in those days during term only as a loan by the Repatriation Department to those who took up vocational training. It was here, during second year medicine in 1919, that he made his greatest friends, who soon learnt to appreciate his many sterling qualities and to admire his determination and fine character.

Although he was perforce a hard worker and a keen student, with little spare time on his hands owing to coaching activities *et cetera*, he was always ready and willing to help his fellows, especially in the subjects of the pre-clinical years, which came easily to him with his previous arts and science training. Endowed with a ready wit, he was one of the best raconteurs in the dissecting rooms and an original member of the bridge school. He also took a lively interest in the corporate life of the Medical School, its society and the university. Obtaining honours in all the preceding years, and burning the midnight oil too vigorously, he found the final examination too great a strain, and he had to take a "post". This was a bitter disappointment and lost him a residency with his friends at "P.A.". Rather than go straight into practice, and to gain further experience whilst replenishing the dwindled exchequer, he took a position as resident medical officer at the Prince of Wales Repatriation Hospital, Randwick, where his past experiences, as a combatant officer and *"un blessé de la guerre"* in France, assisted him greatly in handling his patients with a sympathetic yet firm attitude. Always an ardent supporter of the "digger" and the Returned Sailors, Soldiers and Airmen's Imperial League of Australia, he was equally as quick at recognizing functional symptoms and "lead-swingers".

The remainder of his life, after he left the Prince of Wales Hospital, has already been very adequately described by Dr. Brooke Moore. The early loss of his wife and chief helper, and the subsequent death of his doctor son during the second World War, were indeed sad blows, only to be followed a few years later by one of his daughters being stricken down with extensive poliomyelitis during the birth of his second grandchild, who also became affected. Yet he never faltered and always kept up his interest in his numerous activities, medical and otherwise. That he should have been taken whilst enjoying his first trip and rest from his labours since graduation seems indeed the unkindest cut of all. And thus by his many friends and patients will he always be remembered. *Ave atque vale,* Roy!

PATRICK JOSEPH O'SHEA.

WE regret to announce the death of Dr. Patrick Joseph O'Shea, which occurred on November 8, 1952, at Concord, New South Wales.

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED OCTOBER 18, 1952.[1]

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.[3]	Northern Territory.	Australian Capital Territory.	Australia.[2]
Acute Rheumatism	..	1(1)	2(2)	..	..	..	..	..	3
Amœbiasis	..	2	..	..	..	..	..	..	2
Ancylostomiasis	..	..	..	..	..	..	2	..	2
Anthrax	..	..	..	..	..	..	..	..	..
Bilharziasis	..	..	..	..	..	..	..	..	..
Brucellosis	..	2	..	..	..	..	..	..	2
Cholera	..	..	..	..	..	..	..	..	..
Chorea (St. Vitus)	..	..	..	..	..	..	..	..	..
Dengue	..	..	..	..	..	..	..	..	..
Diarrhœa (Infantile)	..	..	28(27)	..	..	..	..	..	28
Diphtheria	4(1)	11(6)	2	..	2(2)	..	..	..	19
Dysentery (Bacillary)	..	..	1(1)	1(1)	3(3)	..	..	..	5
Encephalitis	..	..	..	2(2)	..	..	..	..	2
Filariasis	..	..	..	..	..	..	..	..	..
Homologous Serum Jaundice	..	..	..	..	..	..	..	..	..
Hydatid	..	..	..	..	..	..	..	..	..
Infective Hepatitis	..	..	..	..	14(11)	..	..	..	14
Lead Poisoning	..	..	..	..	1	..	..	..	1
Leprosy	..	..	..	..	..	..	..	..	..
Leptospirosis	..	..	..	..	..	..	..	..	..
Malaria	..	..	..	..	3(1)	..	..	..	3
Meningococcal Infection	3(3)	4(2)	3(1)	..	..	..	..	..	10
Ophthalmia	..	..	..	..	..	..	..	..	..
Ornithosis	..	..	..	..	..	..	..	..	..
Paratyphoid	..	..	..	..	1(1)	..	..	..	1
Plague	..	..	..	..	..	..	..	..	..
Poliomyelitis	8(6)	5(2)	2(1)	6(5)	..	..	..	..	21
Puerperal Fever	1(1)	..	3(2)	..	..	..	..	..	4
Rubella	..	69(60)	5(4)	..	1(1)	..	..	4	79
Salmonella Infection	..	..	..	..	..	..	..	..	..
Scarlet Fever	17(9)	43(29)	8(6)	3(1)	3(2)	..	..	1	75
Smallpox	..	..	..	..	..	..	..	..	..
Tetanus	..	..	..	..	..	..	..	..	..
Trachoma	..	..	..	..	..	..	..	..	..
Trichinosis	..	..	..	..	..	..	..	..	..
Tuberculosis	15(9)	10(5)	15(9)	9(2)	9(7)	..	..	..	58
Typhoid Fever	..	..	..	..	..	..	..	..	..
Typhus (Flea-, Mite- and Tick-borne)	..	..	..	..	..	..	..	..	..
Typhus (Louse-borne)	..	..	..	..	..	..	..	..	..
Yellow Fever	..	..	..	..	..	..	..	..	..

[1] Figures in parentheses are those for the metropolitan area.

[2] Figures not available.

[3] Figures incomplete owing to absence of returns from Tasmania.

WILLIAM KEITH MUSTON.

We regret to announce the death of Dr. William Keith Muston, which occurred on November 8, 1952, at Woodstock, New South Wales.

Medical Appointments.

Dr. G. David and Dr. M. J. C. Muirhead have been appointed honorary assistant anæsthetists at the Royal Adelaide Hospital.

Dr. R. R. Bowey has been appointed honorary medical officer at the Mount Gambier Hospital, South Australia.

Dr. J. G. Durham has been appointed medical officer to the Mental Hygiene Branch of the Department of Health, Victoria.

Dr. C. B. Eccles-Smith and Dr. M. F. Roche have been appointed quarantine officers in the Northern Territory in accordance with the *Quarantine Act*, 1908-1950.

Dr. B. M. Conlon has been appointed to the Department of Public Health, New South Wales.

Dr. Clarice May Smith has been appointed to the Division of Mental Hygiene, New South Wales.

Dr. Colleen Juanita Ann Shapiro has been appointed to the School Medical Service, New South Wales.

Dr. D. M. Anderson has been appointed medical superintendent of the Government Institution for Defectives at New Norfolk, Tasmania, and also medical examiner of the State Psychological Clinic, Tasmania.

Dr. P. G. Barker has been appointed public vaccinator to the Shire of Mildura, Victoria.

Dr. L. J. L. Price has been appointed public vaccinator to the Shire of Rodney, Victoria.

Dr. J. F. Jackson has been appointed clinical assistant in the Tuberculosis Services, South Australia.

Dr. D. M. S. Dane has been appointed clinical research officer in the Institute of Medical and Veterinary Science, South Australia.

Dr. W. C. T. Upton has been appointed honorary consulting dermatologist at the Royal Adelaide Hospital.

Dr. O. W. Frewin has been appointed honorary visiting medical officer to the Northfield Wards, Royal Adelaide Hospital.

Dr. G. A. Wright and Dr. J. F. J. Cade have been appointed medical superintendents in the Mental Hygiene Branch, Department of Health, Victoria.

Dr. J. L. Gorman, Dr. D. R. Moore and Dr. Marjorie Gilchrist have been appointed senior medical officers in the Mental Hygiene Branch, Department of Health, Victoria.

Dr. A. E. Stenning has been appointed quarantine officer at Yampi Sound, Western Australia.

Australian Medical Board Proceedings.

The following have been registered, pursuant to the provisions of the *Medical Act*, 1918, as duly qualified medical practitioners: Bates, Sidney Edward Mills, B.M., B.Ch., 1942 (Univ. Oxford); Bailey, Christopher Bruce, M.B., B.S., 1947 (Univ. Melbourne).

The following has been licensed to practise medicine and surgery in Tasmania for twelve months under the amending *Medical Act* of May, 1951: Clemente, Giovanni Fausto, Doctor in Medicine, Doctor in Surgery (University of Bari, Italy).

Nominations and Elections.

The undermentioned has applied for election as a member of the New South Wales Branch of the British Medical Association:

Berents, Helen, M.R.C.S. (Eng.), L.R.C.P. (London), 1940, Island Bend, via Cooma, New South Wales.

Hogan, Allan Barry, M.B., B.S., 1941 (Univ. Sydney), M.R.A.C.P., 1948, Kiewa Street, Albury, New South Wales.

The undermentioned have applied for election as members of the South Australian Branch of the British Medical Association:

Heitmann, John Smith, M.B., B.S., 1951 (Univ. Adelaide) (qualified 1950), 202 East Terrace, Adelaide.

Mutze, George Friedrich, M.B., B.S., 1952 (Univ. Adelaide) (qualified 1951), 40 Grant Avenue, Rose Park, South Australia.

The undermentioned has been elected as a member of the South Australian Branch of the British Medical Association: Cooter, Robert Benjamin, M.B., B.S., 1952 (Univ. Adelaide) (qualified 1951).

Diary for the Month.

Nov. 25.—New South Wales Branch, B.M.A.: Ethics Committee.
Nov. 26.—Victorian Branch, B.M.A.: Council Meeting.
Nov. 27.—New South Wales Branch, B.M.A.: Branch Meeting.
Nov. 27.—South Australian Branch, B.M.A.: Scientific Meeting.
Dec. 2.—New South Wales Branch, B.M.A.: Organization and Science Committee.
Dec. 3.—Western Australian Branch, B.M.A.: Council Meeting.
Dec. 3.—Victorian Branch, B.M.A.: Annual Meeting.

Medical Appointments: Important Notice.

Medical practitioners are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Medical Secretary, 135 Macquarie Street, Sydney): All contract practice appointments in New South Wales.

Victorian Branch (Honorary Secretary, Medical Society Hall, East Melbourne): Associated Medical Services Limited; all Institutes or Medical Dispensaries; Australian Prudential Association, Proprietary, Limited; Federal Mutual Medical Benefit Society; Mutual National Provident Club; National Provident Association; Hospital or other appointments outside Victoria.

Queensland Branch (Honorary Secretary, B.M.A. House, 225 Wickham Terrace, Brisbane, B17): Brisbane Associated Friendly Societies' Medical Institute; Bundaberg Medical Institute. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

South Australian Branch (Honorary Secretary, 178 North Terrace, Adelaide): All Contract Practice appointments in South Australia.

Western Australian Branch (Honorary Secretary, 205 Saint George's Terrace, Perth): Norseman Hospital; all Contract Practice appointments in Western Australia. All government appointments with the exception of those of the Department of Public Health.

Editorial Notices.

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